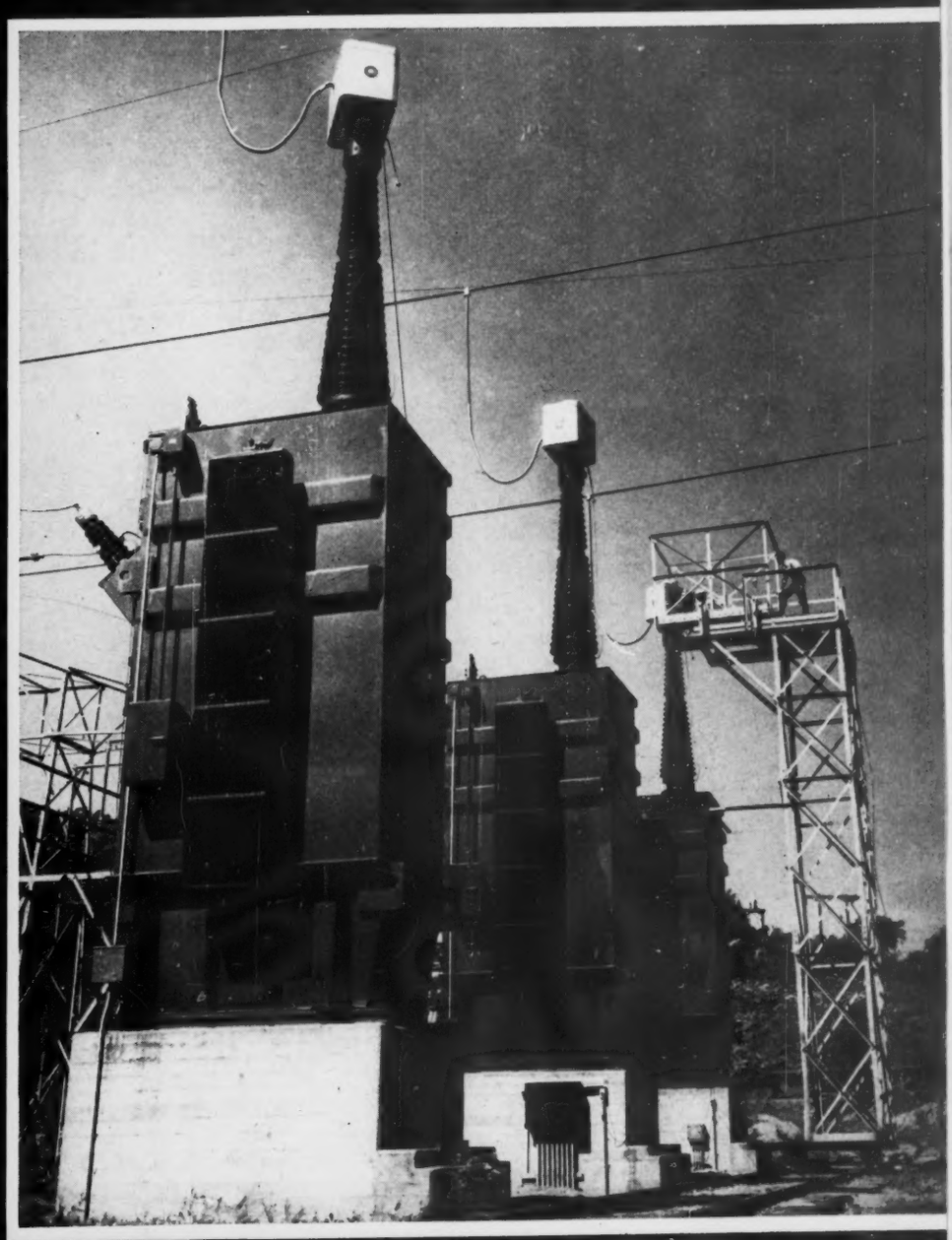
Industrial

Standardization



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Readers Write

Building Codes to Aid In Location of Plants

National Gypsum Company
Buffalo, New York

Gentlemen: We are endeavoring to have our Engineering Department assemble building codes of state and local governments which would affect the locations of our various plants. In at least one case to date we have been advised that the state Labor Department follows the standards adopted by your association. We further understand that you publish a complete catalog and price list of standards. We are, of course, particularly interested in engineering and construction standards, but believe that others might also be of interest to us.

R. O. KREINHEDER
Secretary's Office

. . . The information made available to Mr Kreinheder were the price list of American Standards, which includes standards on building and other related fields, and Pamphlet CB 125, which contains Information on Sources of Material for Use in Preparing and Revising Local Building Codes.

Word Skirmish

"The *casus belli* was a letter from the American Standards Association advising that ASA had long since adopted the terms 'flammable' and 'combustible', with the corresponding negatives 'non-flammable' and 'non-combustible', to avoid confusion sometimes experienced in the U.S.A. with 'inflammable'. The prefix 'in-', it was pointed out, has frequently a negative sense.

"In less time than it takes to say 'Chambers Encyclopedia', the corridors and offices of the SAA [Standards Association of Australia] were echoing to the clash of metaphor on simile, the whine of meiosis, the shriek of hyperbole, and the muffled explosions of numerous theories. As reinforcements were summoned from various organizations throughout

Company Members

More than 2100 companies hold membership either directly or by group arrangement through their respective trade associations

We expected this...

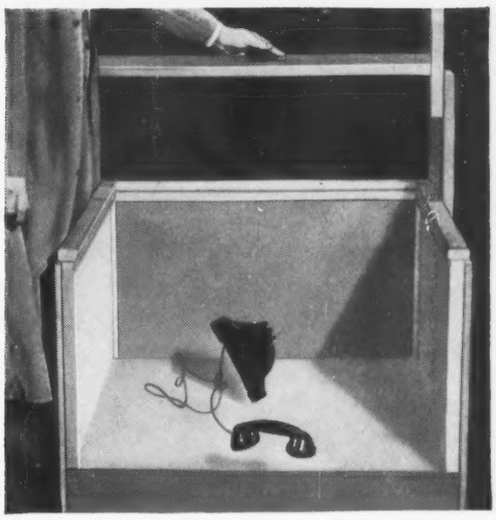
TELEPHONES must withstand continued hard usage. To make sure that they will, Western Electric engineers test each day's production of subscriber sets at the factory to insure that standards of ruggedness are met.

Other subscriber sets, taken from the production lines, are sent to Bell Telephone Laboratories where, in addition to the three tests pictured, handset handles and transmitter and receiver caps are checked for mechanical strength, dials are analyzed to determine noise levels, the pressure required to operate switchhooks is measured, feet of combined sets are checked to make sure they won't scratch or stain subscribers' furniture . . . and many other important details are constantly watched.

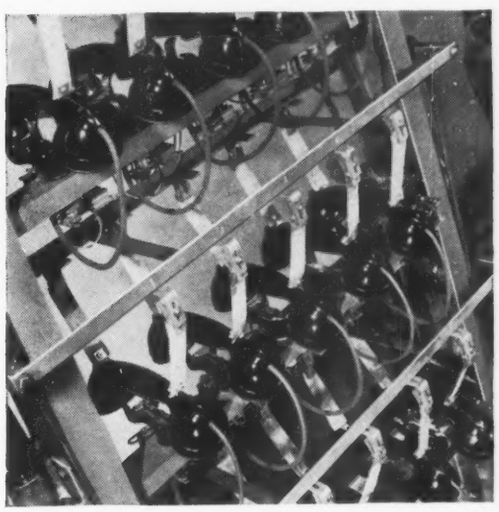
Little wonder, then, that Western Electric telephones can take the rough treatment they get in years of service.

Western Electric

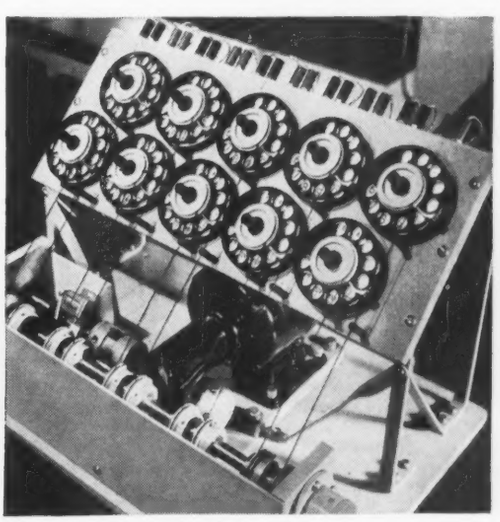
A UNIT OF THE BELL SYSTEM SINCE 1882



In this test, complete combined sets are dropped from a specified height onto a hardwood surface. Each one is dropped from 16 different positions.



These handsets are given a 1½" free drop 22,000 times overnight . . . equal to four years of normal usage. 20,000,000 of these test drops have been made.



Subscriber dials should be capable of at least one-half million operations. With this machine, dial life is checked at the rate of 40,000 dialings per day.

Industrial **Standardization** Vol. 19 No. 5

Published Monthly by AMERICAN STANDARDS ASSOCIATION INCORPORATED 70 E. 45th St., N. Y. 17

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ASA
Reg. U. S. Pat. Off.

Ruth E. Mason, Editor Janet Meldon, Assistant Editor

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

Single copy, 35 Cents September 1948

Subscription price $4.00 per year (foreign $5.00). Special to schools and libraries $2.00 (foreign $3.00). Re-entered as second class matter August 13, 1948, at the post office at New York, N. Y., under the Act of March 3, 1879.

the Commonwealth, the small-arms fire of personal preferences and dictionary definitions was drowned by the heavy gunfire of official opinions.

"Finally, almost atomic in its crushing logic, came a comment from two separate Government bodies, to the effect that 'inflammable' was already solidly entrenched in Commonwealth and State Acts and Regulations. The use of 'flammable' would, in fact, cause more confusion to Australians than the hitherto innocent (or shall we say 'non-nocent'?) prefix 'in-.'

"When the smoke of battle had somewhat abated, it was observed that the apostles of 'flammable' had little more to offer (apart from cries of 'Reactionary!') to this somewhat inflammable (or flammable) topic. Their opponents, however, turned a retreat into a rout with the following conclusive contribution to the brief but glorious passage of arms:

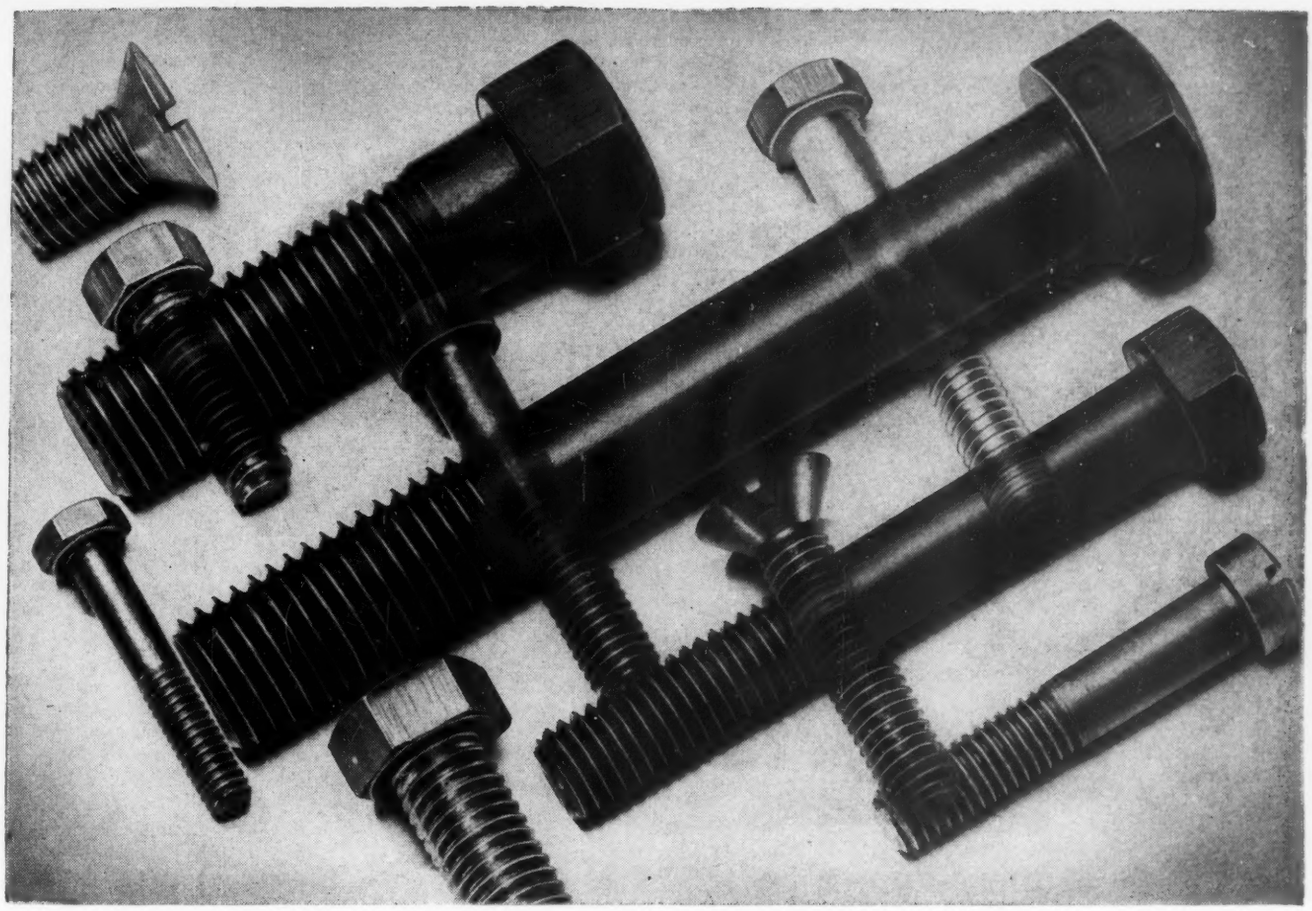
" 'If the prefix "in-" is to be lopped off from words other than negatives, how's this for an office memo?

" ' "I am structed to form you that the more dustrious and telligent members of the Committee on Spection and Surance of Flammable Materials have been duced to refrain from attending meetings in a state of toxication." ' "

—Australian Standards Quarterly

Our Front Cover

Designed to build up the mightiest sustained electrical pressure ever applied to a transmission line are these three giant transformers which will raise an incoming voltage of 69,000 volts to a maximum of 500,000. See article on new standards for transformers on page 109. Photo courtesy Westinghouse Electric Corporation.



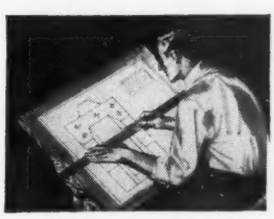
IT'S "t.f.e."

TO FASTEN QUALITY WITH QUALITY

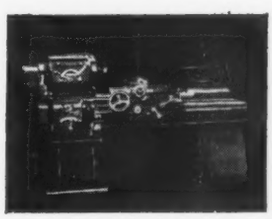
Purpose of a fastener is to fasten. So the cheapest fastener is the one that fastens *best*, with minimum time for assembly, maximum holding power per dollar, and the ultimate contribution to the finished product's appearance.

Manufacturers of machinery and equipment have learned that specifying RB&W Cap Screws saves money all along the line. RB&W's investments in spheroidizing furnaces to improve structure of high carbon and alloy steels . . . mills to draw its own wire to closest tolerances . . . atmospheric-controlled furnaces for scientific heat treatment . . . are as important as the modern production machines in contributing to *True Fastener Economy*.

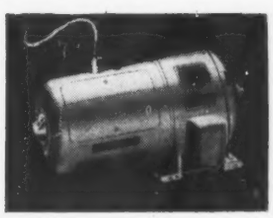
On *any* problem involving bolts, nuts, screws, rivets or specials, RB&W engineers will help you attain *True Fastener Economy*.



DESIGNING FOR T.F.E. Correct use of RB&W Cap Screws often permits reduction in number and size of holes, saving time and increasing strength of assembly.



CAP SCREWS FOR SEVERE SERVICE. Uniformly high strength, maximum toughness and adherence to close tolerances equip RB&W Cap Screws for severe stress conditions.



SUPERIOR APPEARANCE. The superior finish of RB&W Cap Screws enhances the appearance of the assembly and contributes to the sales value of the final product.

t.f.e.

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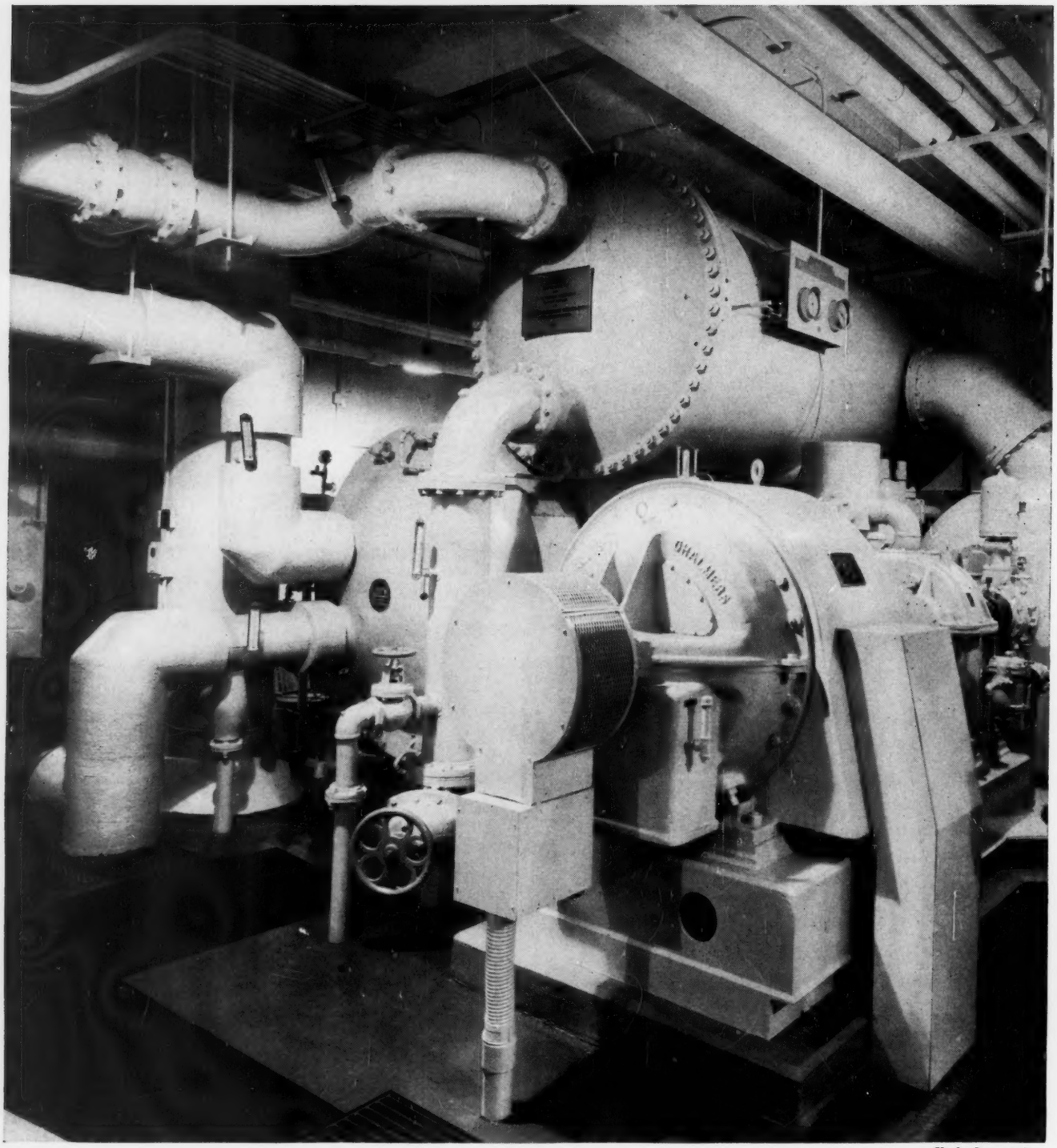
103 Years Making Strong the Things That Make America Strong



York Corporation

The development of the new American Standard on Cast-Iron Flanges and Flanged Fittings for Refrigerant Piping, Class 300, B16.16-1948, will bring many benefits to the refrigerating industry. See article on page 116.

Data on Transformers Will Help Purchasers

Comprehensive recommendations for transformers, regulators, and reactors include requirements, test codes, and guides for operation; wartime experience justifies greater emergency overloads

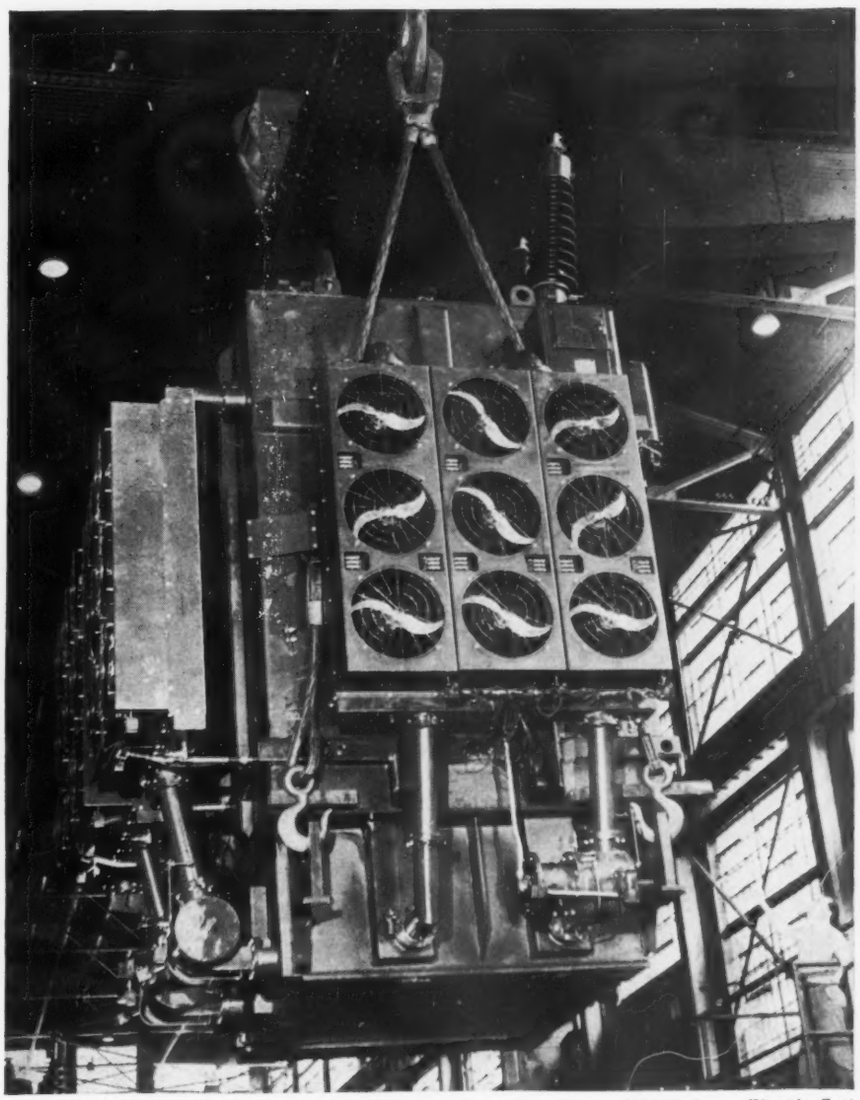
By V. M. Montsinger

THE key role that transformers play in the distribution and transmission of electricity, and the greatly expanded construction program inaugurated this year to meet the world's unprecedented postwar demand for electrical energy, makes the new edition of the American Standards for Transformers, Regulators, and Reactors of special interest.

Exceeding in value any other major classification of electric equipment purchased today by power suppliers, the value of 1948 production of power and distribution transformers has been estimated as 200 million dollars.

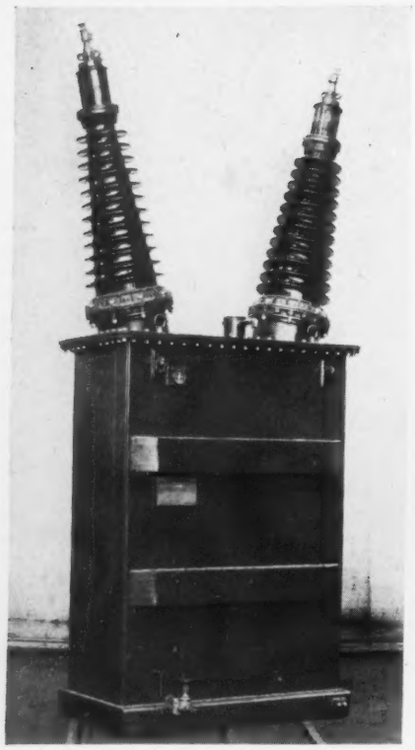
So important is their function that without transformers the present extensive systems for distribution of electric power and long-distance transmission of electricity would have been impossible. The need for transforming the high voltage which can be transmitted most economically into the low voltage which can be used most economically by industry makes some type of transformer a necessity in every industrial operation. As a result, the variety of power and distribution transformers

V. M. Montsinger, *research engineer, Power Transformer Engineering Department, General Electric Company, Pittsfield, Massachusetts, is chairman of the Sectional Committee on Transformers, C57, which developed the new American Standards.*



Westinghouse Electric Corp

The most powerful transformer ever built in this country—a 142-ton giant capable of turning out 150,000 horsepower of electrical energy—is shown being readied for testing before its installation in Buffalo, New York.



General Electric Co

Instrument potential transformer.

in use has been described as ranging from "giants as big as houses, that step up the voltage at the source of power, to small box-like affairs atop poles that step the voltage down for household use."

Thus the comprehensive standards just completed will be helpful not only to the producers of transformers and the utility companies but to every manufacturer and industrial user of electricity. They will provide a common yardstick by which potential users may evaluate bids for new equipment, thus offering a fair basis for competition among all producers of transformers. Their use will result in increased manufacturing efficiency and output, and they will make it possible to allocate responsibility for any failure in performance between manufacturer and user of apparatus built to the standards.

Through the use of the new standards the work of experts in the development of technical specifications is made available to all industrial users, large or small, for the purchase of their transformers. As a result, they are assured of receiving equipment of more uniform quality at a lower price than would have prevailed without the standards. They can also count on receiving the standard equipment in a shorter time than would otherwise have been possible.

Included in the 18 approved American Standards are a general document on terminology, providing definitions for the terms used in all the standards, one on general requirements, seven standards for the different types of transformers, three test codes, and six guides for loading and operation. The special requirements cover instrument transformers; constant-current transformers of the moving-coil type; step-voltage and induction-voltage regulators; current-limiting reactors; general-purpose specialty transformers; and rectifier transformer equipment. They do not apply to autotransformers used as part of autostarters, testing transformers, welding transformers, auxiliary transformers for series street lighting, and small transformers for special purposes such as doorbell and luminous-tube transformers. Dry-type transformers rated 50 kva and below and 600 volts or less are included, however, since these are considered to be general-purpose specialty transformers.

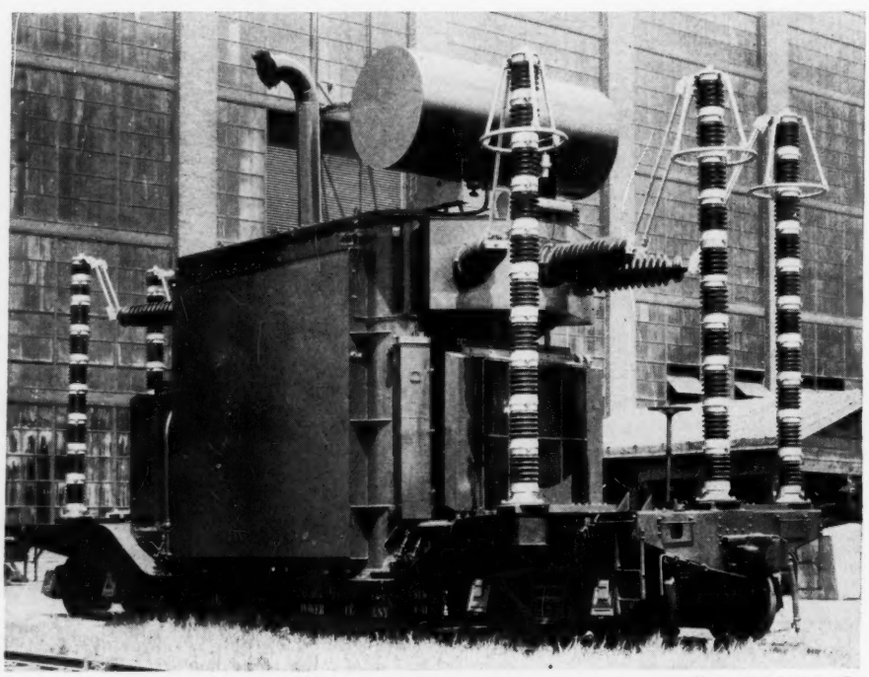
Separate standards have been approved for each type of transformer in order to make it possible to act more quickly in revising individual sections when it becomes necessary to bring them up to date.

Practices which for many years have been commonly accepted as the best in manufacture and use of electrical apparatus have been combined in this new edition with recommendations for more efficient use of materials and equipment developed during the last war.

For some time, manufacturer and user groups have been working together to bring about a codification of transformer practice and to present a unified and cohesive manual so clear and comprehensive that no one can fail to understand how to use it. This new edition is built upon work done in 1940 and 1942, coordinating the standard practices originally presented in different publications by the American Institute of Electrical Engineers, the National Electrical Manufacturers Association, and the Edison Electric Institute.

The first edition, issued in 1940 for a period of trial use, was based on specific publications of these organizations, although it was a coordination and enlargement of their provisions. The trial period brought suggestions for changes and improvements which were incorporated in the first approved edition in 1942. At that time, the document was described as the most complete set of standards yet published in the United States, comprising as it did not only the information necessary for the preparation of purchasing specifications for the entire line of transformers, regulators, and reactors, but also a test code and guides for operation. The new edition is a revised and expanded version of the 1942 publication. In addition to the fact that all of the material has been brought up to date and in line with the practices of the contributing organizations, a new standard on rectifier transformer equipment has been added, and the section on instrument transformers has been greatly enlarged.

The most important change, however, is in the Guides for Loading, which now include a great deal of



General Electric Co

Oblique high-voltage-end view of mobile transformer.

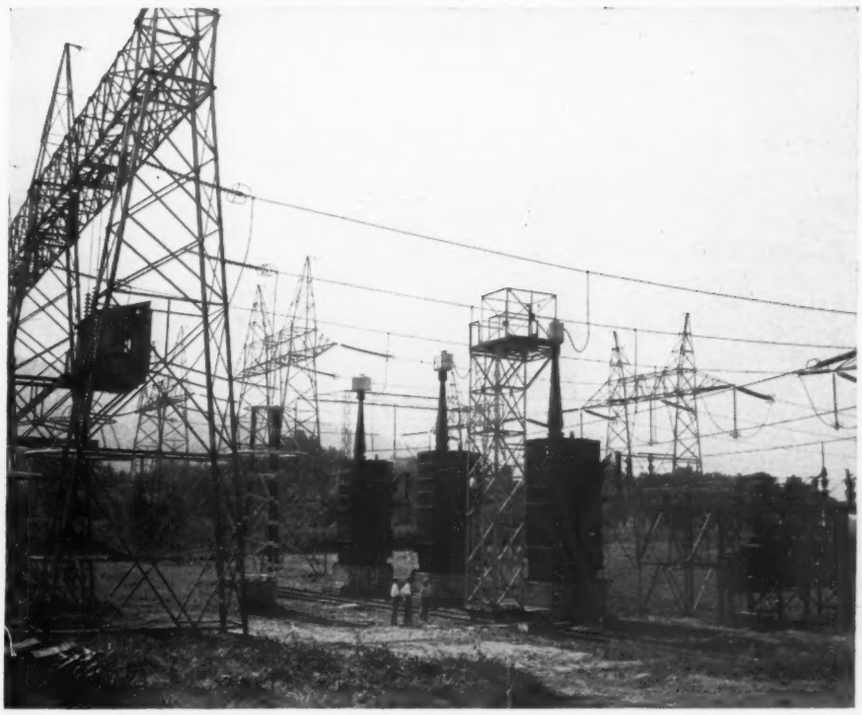
additional information and also embody some new conceptions originated during World War II to help conserve critical war materials. Principally, these changes have to do with providing for increased overload capacity of a transformer under emergency conditions. This emergency overload capacity can be utilized with certain precautions to prevent a disruption of service in case of failure of any one of a bank of transformers. In the new standards, loads as great as two times normal kva may be permitted under certain conditions for as long as one hour with a sacrifice of only 1 percent of life expectancy. Complete formulae are given for calculating these overloads. New guides for loading instrument and current-limiting reactors have also been added.

The general purpose of the Guides is to give information which will assist in the economical use of transformer equipment under various conditions of service. They give information on the extent and duration of loading for normal life expectancy under various conditions, as well as making recommendations for short-time overloading with moderate sacrifice of life expectancy. General guides are also given for operation of transformers, regulators, and reactors at altitudes greater than 3300 feet and at rated kva when the cooling air does not exceed certain values; also the general guides give insulation class correction factors for altitudes greater than 3300 feet—up to 15000 feet.

The recommendations in the Guides are based on life expectancy of transformer insulation as affected by operating temperature and time. It is explained, however, that the exact life expectancy of transformers at various operating temperatures is not accurately known. The information, however, gives the loss of the mechanical strength of the insulation which determines the ability of the transformer to withstand electrical and mechanical surges such as lightning, and short-circuits.

A subcommittee is now engaged in a project of investigating the effects of temperature on the life of Class B and Class H insulations for dry-type transformers.

Two Appendices, not a part of the standards, give supplementary material designed to assist in the application of the Guides. Appendix I provides Calculations of Temperature Rise and Loss of Life for Short-Time Overloading of Transformers. Appendix II provides Formulas for Calculating Transient Heating of Oil-Immersed Transformers.



Westinghouse Electric Corp

The transformers shown above form the basis of these three experimental transmission lines which were put into operation in Brilliant, Ohio.

International Coordination on Transformers Proposed for Study at IEC Meeting

"THERE is at the present time, and there will be for many years to come, the greatest demand for electric equipment in history throughout the world. The devastations of World War II, the overloading of equipment during the war and since, and the general lack of normal maintenance and replacements have all contributed to this demand."

This statement is made in an article[1] calling for unified international standards or "conversion factors" to equate existing standards, and discussing the differences between various national standards and the International Electrotechnical Commission specifications. A meeting has been scheduled for this fall in London, England, to consider bringing the 1939 IEC specifications for transformers up to date.

In the American Standards for transformers, the apparatus must be capable of delivering simultaneously the voltage and kva rating shown on its name plate. Although the authors explain that they are not entirely clear on the IEC standards, they believe that the official kva rating is based on the no load voltage of the secondary winding multiplied by the rating current of the winding. This being the case, the American Standard transformer would actually have a larger capacity than an IEC transformer of the same name plate rating.

The authors found that the IEC, the British, the Australian, and the French wartime standards for transformers specify from 5 to 15 degrees higher temperature rises than the American Standard rise of 55 degrees centigrade. They suggest that because improved means, such as hot-spot temperature indicators and more reliable oil thermometers, are available today for detecting increases in temperatures under operating conditions, the temperature rise of water-cooled transformers could be safely increased from 55 to 60 degrees centigrade. They also believe that the possibility of permitting five degrees centigrade higher average rise in forced-oil-cooled transformers than

[1] "International Transformer Standards and Applications," by A. Boyjian; H. S. Hubbard; H. M. Jalonack; V. M. Montsinger; *Electrical Engineering*, July 1948, Vol. 67, No. 7.

in those cooled by natural oil flow, as is now incorporated in most other national standards, should be considered for inclusion in American Standards. If the average winding temperature rise for these two classes of transformers is increased by five degrees centigrade in the American Standards, bringing it up to 60 degrees centigrade, this will be a logical step towards bringing the temperature rise of transformers in various national standards closer together, they believe.

It is also recommended that impulse levels be adopted internationally for various voltage classes.

Differences in tolerances between various standards produce difficulties in the evaluation of bids, the article points out. Study of the differences between the American Standards and the IEC specifications brought the authors to the conclusion that numerical comparison ratios are hardly practical with respect to tolerances, although they believe there would be no practical barrier to the adoption of a universal practice with respect to this phase of the standards.

In general, they declare, it would seem that universal tolerances on losses, impedance, and other guaranteed performance could be chosen to reflect normal design margins so that the average test performance would be close to the warranty but the odd transformer that might happen to test on the high side would not be rejected.

Some of the literature published recently in France indicates that the electrical industry in France is becoming greatly interested in the possibilities of loading electric apparatus by its ability to withstand temperatures rather than by the name plate rating. British Standards and American Standards, although containing information of a similar nature on loading, differ in the scope of the conditions covered and in the magnitudes of the loading values. The Australian specification differs from both.

Obviously much study must be given the subject of unified international standards by joint groups thoroughly familiar with the various standards and the reasons leading to their adoption, the authors conclude. They therefore recommend that the International Electrotechnical Commission and the various national representatives on the IEC give careful consideration to the following suggestions:

1. To reconcile the various national standards and practices to the maximum practical extent, with the final goal of having all national standards and practices eventually conform to IEC specifications.

2. To clarify any items of difference which still remain, and state the reasons for the divergence.

3. Where a universal standard is not adopted, to agree on conversion factors to convert one national standard to another by a definite numerical factor so that intelligent comparison and evaluation of bids can be made when purchasing and selling in world markets.

The new edition of the American Standards for Transformers, Regulators, and Reactors, C57, has just been published, with the individual standards bound separately, but collated together in a stiff paper cover with screw fasteners. This will make it possible to replace the individual standards as revision becomes necessary.

V. M. Montsinger, General Electric Company, is chairman of the sectional committee made up of national organizations which prepared the standards and will continue to keep them up to date. The Electrical Standards Committee is sponsor of the project.

Eighteen standards were approved in the 1948 edition. They are:

Terminology for Transformers, Regulators, and Reactors, C57.10-1948
General Requirements for Transformers, Regulators, and Reactors, C57.11-1948
Distribution Power and Regulating Transformers, and Reactors Other Than Current-Limiting Reactors, C57.12-1948
Instrument Transformers, C57.13-1948
Constant-Current Transformers of the Moving-Coil Type, C57.14-1948
Step-Voltage and Induction-Voltage Regulators, C57.15-1948
Current-Limiting Reactors, C57.16-1948
General Purpose Specialty Transformers, C57.17-1948
Rectifier Transformer Equipment, C57.18-1948
Test Code for Distribution, Power, and Regulating Transformers, C57.22-1948
Test Code for Instrument Transformers, C57.23-1948
Test Code for Rectifier Transformer Equipment, C57.28-1948
Guide for Operation of Transformers, Regulators, and Reactors at Altitudes Greater than 3300 Feet (1000 Meters), C57.31-1948
Guide for Loading Oil-Immersed Distribution and Power Transformers, C57.32-1948
Guide for Loading and Operation of Instrument Transformers, C57.33-1948
Guide for Loading Pole-Type Constant-Current-Transformers, C57.34-1948
Guide for Loading Step-Voltage and Induction-Voltage Regulators, C57.35-1948
Guide for Loading Current-Limiting Reactors, C57.36-1948

Because the committee believes it to be important for all concerned that these American Standards be kept in accord as closely as possible with the most up to date practice, it has already placed one of the standards approved in this new edition under revision. This is the American Standard Distribution Power and Regulating Transformers, and Reactors Other than Current-Limiting Reactors, C57.12-1948. The revision is being undertaken because of changes made by the Transformer Committee of the National Electrical Manufacturers Association in the new edition of the NEMA standard for this type of equipment. The sectional committee believes that it may find some of the changes made in the NEMA standard suitable for inclusion in the American Standard. Work on this revision is now under way. The revised standard will be sent to all purchasers of the 1948 document without charge, on request.

Copies of the 1948 edition of the American Standards for Transformers, Regulators, and Reactors, C57, can be obtained from the American Standards Association at $4.00 each.

Accuracy Data Valuable for Specification

An article published in the May 1948 issue of *Electrical Engineering*, entitled "Feeder Voltage Regulator Accuracy Standards," by W. E. Birchard of the General Electric Company, may be of interest in connection with the new American Standards on Transformers, Regulators, and Reactors. The standards for accuracy of control devices for induction voltage and step voltage regulators included in American Standard C57.15-1948 will provide a practical basis for specifications, Mr Birchard says. "The standards are not yet perfected," he declares, "but they appear to offer a workable set of rules under which the industry can gain the experience necessary to improve them. They should provide a valuable aid in obtaining the desired economic benefits from the application of higher accuracy regulators."

AIEE Meeting in Mexico Encourages Mutually Beneficial Cooperation

By Fred E. Harrell

Vice-Chairman, Standards Committee, AIEE

Manufacturing Vice-President
Reliance Electric & Engineering Company

A TECHNICAL session conducted by the Standards Committee of the American Institute of Electrical Engineers at Mexico City during the Institute's summer meeting June 21-25 was received with real interest, and marks the beginning of greatly accelerated understanding and mutual appreciation between standards personnel of Mexico and the United States.

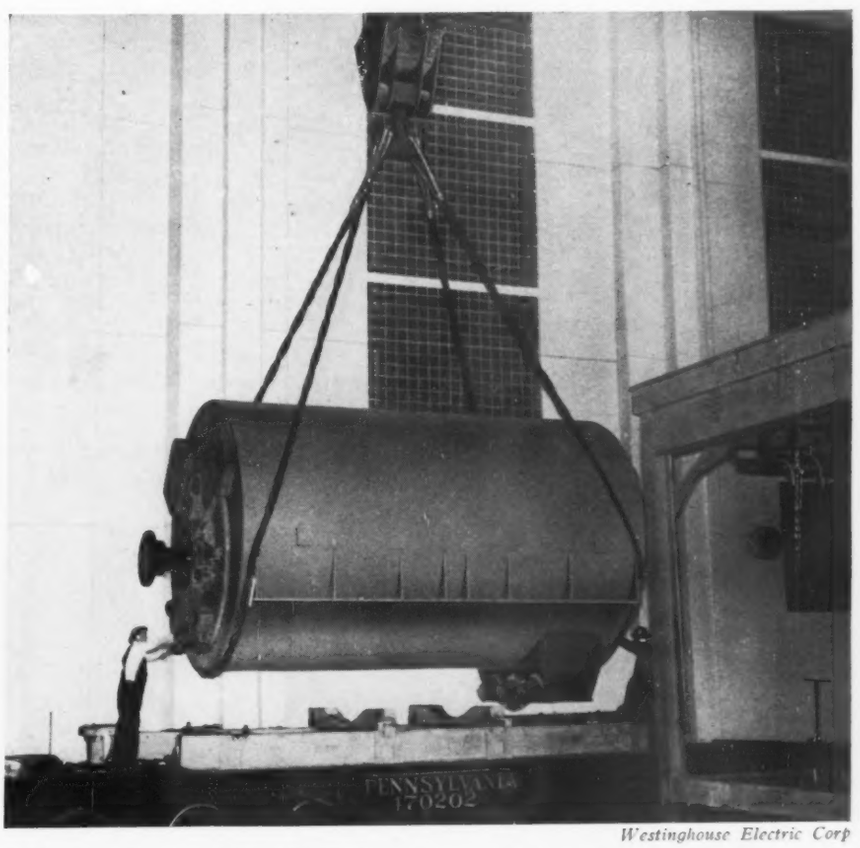
The session was attended by approximately 50 persons, of whom more than half were residents of Mexico. Although numerically this might appear to indicate little enthusiasm, actually the keen interest and participation by the heads of the Mexican Department de Normas gives new encouragement to the Institute with regard to the likelihood of mutually beneficial cooperation in standards matters as Mexico expands further in its industrial growth.

The program was keynoted by Dr H. S. Osborne, chief engineer of the American Telephone & Telegraph Company, and past chairman of the ASA's Standards Council, who brought out clearly just what the standardization activity is in the United States and how the American Standards Association provides for voluntary coordination of the program. The National Bureau of Standards, other Government agencies, large trade associations, and all the principal American engineering societies have cooperated in this standardization program.

Next followed a presentation by Frank Thornton, Westinghouse Electric Corporation, chairman of the Codes and Standards Committee of the National Electrical Manufacturers Association. Mr Thornton described the place and function in standardization activities of the trade associations such as the National Electrical Manufacturers Association. Particular interest was attached to the index of American electrical standards, together with the full names and addresses of the sources of these standards, incorporated in Mr Thornton's paper.

Safety codes and the tremendous importance of paralleling industrial growth with suitable safety requirements were dealt with in a paper by W. R. Smith, safety engineer, Public Service Electric and Gas Company, Newark, N. J., formerly chairman of the ASA Safety Code Correlating Committee. Mr Smith was unable to be present, but his associate, E. H. Snyder, ably presented the paper.

Specific apparatus—factory assembled substations and electric motors—were covered in the last two papers, which brought out the economic advantages to purchasers of electric



Westinghouse Electric Corp

Built according to AIEE-ASME standards recently set up for the industry, this 60,000 kw generator was shipped completely assembled with rotor in place.

machinery and apparatus, together with the guarantee of quality and performance, resulting from the existence and furthering of American Standards. The paper on factory-assembled substations was presented by E. M. Hunter, General Electric Company, one of its co-authors, and the paper on electric motors by W. R. Hough, chief engineer, Reliance Electric & Engineering Company, Cleveland.

This Standards Committee activity brought together a small group vitally interested in American and Mexican standards for specific consideration of various parts of the problem on three successive days. These conferences were supplemented by a visit to the nearly completed new building which is to house the operations of the Mexican government's Department de Normas, where the Director General, Rafael Illescas Frisbie, was the host.

Mr Harrell and Mr Willem Roos of the Mexican Light and Power Company of Mexico City were the co-chairmen of the Standards Session.

AIEE Organized to Work for Coordination of Standards

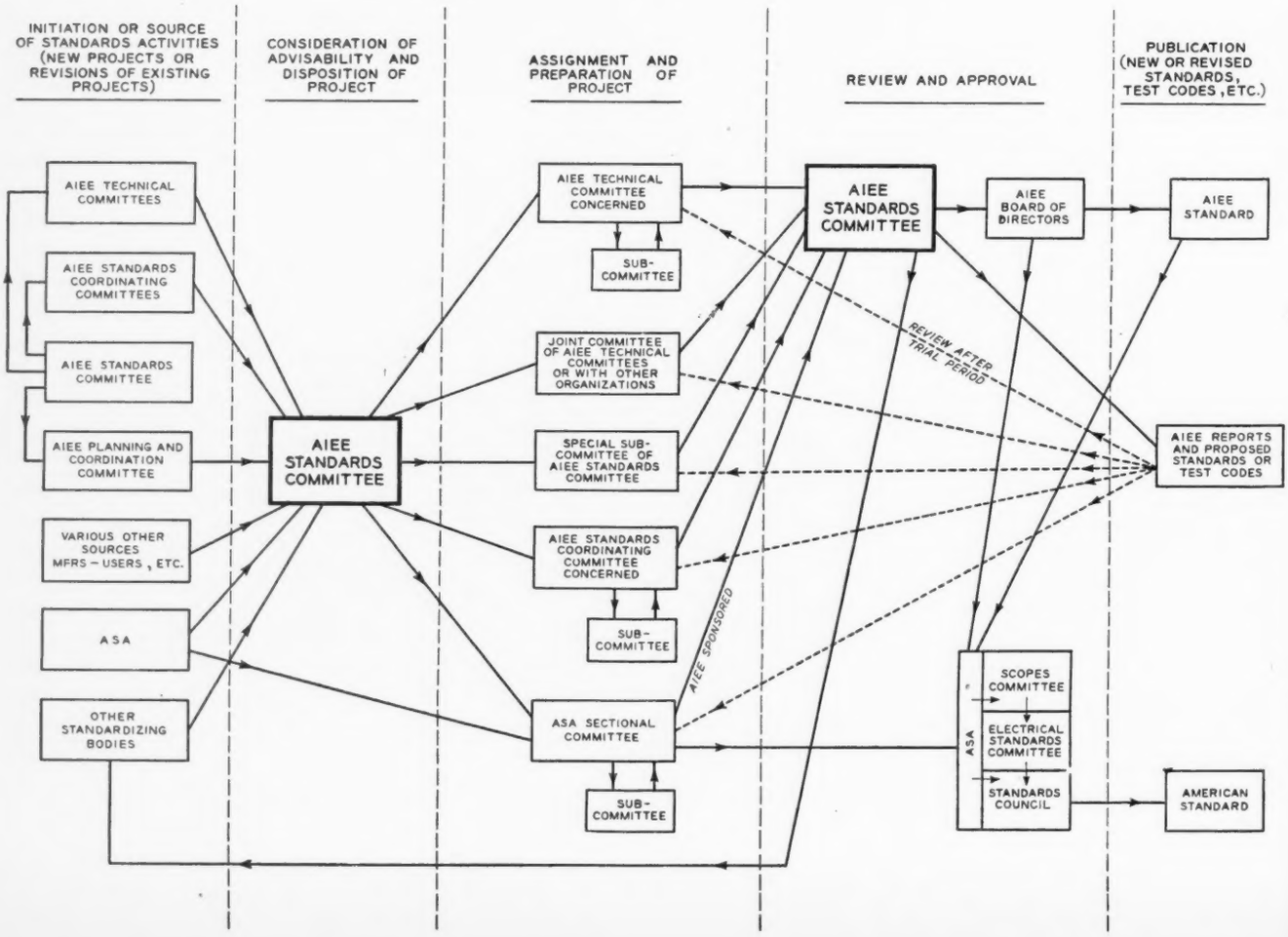
THE standardization work of the American Institute of Electrical Engineers started nearly 50 years ago with the appointment of the first AIEE committee on standardization in 1898. It is described by the Institute itself as one of the busiest of AIEE committees, and one of the most far-reaching in influence.

The Standards Committee carries on its work through technical committees, the chairmen of which are ex-officio members of the Standards Committee, through coordinating committees, or through special subcommittees. Ordinarily the preparation of a standard is referred to a technical committee, but when the work is broader in nature than would logically fall within the scope of a single technical committee, it is assigned to a coordinating committee. The titles of the coordinating committees indicate their function:

Reference values for standards
Standard voltages and currents
Surge testing and insulation
Basic principles for rating of electric machinery
Basic theories and units
Interferences, sound and vibration problems.

Recommendations to bring about maximum uniformity of standards for the whole of electrical science and industry are presented by the coordinating committees to sectional committees of the American Standards Association and to the International Electrotechnical Commission. The detailed work of reviewing standards and reports submitted to the Standards Committee for approval is done by the coordinating committees in addition to their task of synthesizing the data and work of the AIEE technical committees to

AIEE Procedure in Development of Electrical Standards


INITIATION OR SOURCE OF STANDARDS ACTIVITIES (NEW PROJECTS OR REVISIONS OF EXISTING PROJECTS)
CONSIDERATION OF ADVISABILITY AND DISPOSITION OF PROJECT
ASSIGNMENT AND PREPARATION OF PROJECT
REVIEW AND APPROVAL
PUBLICATION (NEW OR REVISED STANDARDS, TEST CODES, ETC.)
AIEE TECHNICAL COMMITTEES
AIEE STANDARDS COORDINATING COMMITTEES
AIEE STANDARDS COMMITTEE
AIEE PLANNING AND COORDINATION COMMITTEE
VARIOUS OTHER SOURCES MFRS – USERS, ETC.
ASA
OTHER STANDARDIZING BODIES
AIEE STANDARDS COMMITTEE
AIEE TECHNICAL COMMITTEE CONCERNED
SUB-COMMITTEE
JOINT COMMITTEE OF AIEE TECHNICAL COMMITTEES OR WITH OTHER ORGANIZATIONS
SPECIAL SUB-COMMITTEE OF AIEE STANDARDS COMMITTEE
AIEE STANDARDS COORDINATING COMMITTEE CONCERNED
SUB-COMMITTEE
ASA SECTIONAL COMMITTEE
SUB-COMMITTEE
AIEE SPONSORED
AIEE STANDARDS COMMITTEE
AIEE BOARD OF DIRECTORS
REVIEW AFTER TRIAL PERIOD
AIEE STANDARD
AIEE REPORTS AND PROPOSED STANDARDS OR TEST CODES
ASA
SCOPES COMMITTEE
ELECTRICAL STANDARDS COMMITTEE
STANDARDS COUNCIL
AMERICAN STANDARD

eliminate duplications and inconsistencies.

The general scope of the Standards Committee's responsibility is indicated in the recently approved section of the AIEE Bylaws relating to the committee. It states in part:

"This committee shall consider and investigate all matters relating to units and standards appertaining to or applicable in electrical engineering and in the allied arts and sciences. The committee shall coordinate the work of the technical committees with respect to the making and revising of AIEE standards. It shall represent the Institute in cooperation with other standardizing bodies in matters relating to units and standards."

AIEE Representatives Serve On Other Standards Committees

The committee also appoints AIEE representatives to serve on standardizing committees for which this Institute is sponsor, or on committees working on standards under the sponsorship of other organizations. A few of these committees under the procedure of the American Standards Association include the sectional committees on Electrical Insulation Materials, C59; Electric and Magnetic Magnitudes and Units, C61; Definitions of Electrical Terms, C42; and Code for Electricity Meters, C12; Wood Poles, O5; and Electrical Measuring Instruments, C39.

The AIEE is also represented on the Joint Committee on Insulation Coordination of the American Institute of Electrical Engineers, the Edison Electric Institute, and the National Electrical Manufacturers Association.

Important AIEE standards completed during the past year include:

- General Principles Upon Which Temperature Limits Are Based in the Rating of Electric Machines and Apparatus
- Neutral Grounding Devices
- Electric Recording Instruments
- Potheads
- Roof, Floor, and Wall Bushings
- Aircraft D-C Apparatus Voltage Ratings
- Specifications for Weather-Resistant (Weatherproof) Wire and Cable (URC Type).

In addition, the Institute was sponsor for the American Standards on Transformers, Regulators, and Reactors, C57, just completed and approved, copies of which were made available to AIEE members at the Mexico City meeting.

As explained by H. E. Farrer, secretary of the AIEE Standards Committee:

"Over the ensuing half century, the AIEE has supplied cooperative leadership in setting the standards of electrical engineering, sharing the responsibility of standardization with other national engineering societies in related fields. . . . AIEE standardization machinery provides a fairly informal means for doing, with minimum effort, the spade work so necessary to proper development of standards."

When the AIEE task is accomplished in a given field, the question arises, "Should the project be referred to ASA for further consideration and action; if so, when?" Mr Farrer explains that the factors which govern that decision vary so widely that no definite rule for action can be set down.

Publish New Developments For Comment by Industry

"When the project fits into the scope of an existing sectional committee of ASA it usually is passed along immediately to the sectional committee. If, however, the proposed standard, code, or guide covers an entirely new development, experience has proved it advisable to have AIEE publish it in pamphlet form, clearly indicating the status of the material covered. By this means, industry can be advised of what is proposed, and every opportunity is given for obtaining suggestions and criticism within a stated period. At the expiration of the probationary period, the project is frequently ready for immediate formal action by the Institute and ASA.

"With the growth of the ASA, the Institute's activity probably has been greater rather than less. However, much of it is in cooperation with other bodies and in sectional committees, and therefore is less conspicuous as an AIEE project. Nevertheless, the AIEE as sponsor for many sectional committees bears a major portion of the burden of the work."

R. L. Jones, Bell Telephone Laboratories, is chairman of the AIEE Standards Committee.

U.S. Chamber President To Lead Annual Meeting Panel

Earl O. Shreve, President of the United States Chamber of Commerce, will deliver the keynote address at the October 21st meeting of the Conference of Staff Executives of the Member-Bodies of the American Standards Association, which will be held in conjunction with ASA's Thirtieth Annual Meeting at the Waldorf-Astoria, New York.

A panel discussion, with Mr Shreve as moderator, is being built around the topic, "What Good are Standards." Five speakers will participate in this panel, devoting fifteen minute periods to the value of standards in manufacturing, in marketing, in specifying and purchasing of manufacturing materials, and to what standards can mean to wholesalers, retailers, and to the ultimate consumer. The speakers will include Mrs Carol Willis Moffett, a director of the American Standards Association; Vincent de P. Goubeau, director of materials, RCA Victor Division, Radio Corporation of America; R. C. Sogge, Executive Department, General Electric Company. Following each paper, there will be a general discussion.

The Conference of Staff Executives will meet in an all day session. Election of officers and members of the Executive Committee will be held at a brief business meeting during an informal luncheon for those attending the Conference.

The Conference of Staff Executives was organized early in 1946 to promote better understanding among association executives of the American standardization movement, and to provide a forum for the exchange of information among ASA's Member-Bodies and Associate Members regarding their respective standardization activities, policies, and procedures. It provides executives of associations, institutes, and societies with a means for discussion of matters of mutual interest to the ASA and members of the federation, thus making available to the Board of Directors and officers of the ASA, helpful advice in the advancement of the Association. C. L. Warwick, Executive Secretary of the American Society for Testing Materials, is chairman of the CSE.

Uniformity for Refrigerant Fittings

Easy replacement of standard parts and increased accuracy in design assure added protection for refrigeration of perishable items

By Lester W. Benoit

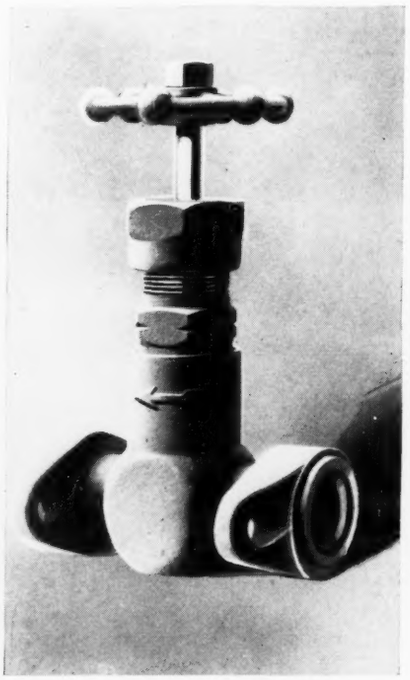
SINCE 1912, when the refrigerating industry was reaching such proportions that fittings were being produced in large quantities by many different makers, the desirability of standardization has been apparent to all. In those days the flanges and fittings were known as ammonia fittings since this was the predominant refrigerant in the industry at that time. Through constant trial and error over the years, attempts have been made to agree on standard fittings and the recent approval of the American Standard on Cast-Iron Flanges and Flanged Fittings for Refrigerant Piping, Class 300, (B16.16-1948) by the American Standards Association brings this program to a successful completion.

Interest in the need for standardization waned from time to time as the refrigerating industry progressed and as new refrigerants came into prominence, raising questions about future needs for these fittings and the possibility of their falling into disuse. These fittings as a general type, however, continued to be used for refrigerant piping and finally prompted the formation of committees to study the possibilities of standardization.

Lester W. Benoit, *secretary of ASA Sectional Committee B16 on Pipe Flanges and Fittings which developed the new American Standard on Cast-Iron Flanges and Flanged Fittings for Refrigerant Piping, Class 300, B16.16-1948, is also general secretary of the Manufacturers Standardization Society of the Valve and Fittings Industry, one of the sponsors of the project.*

In accordance with ASA procedure a sectional committee on ammonia flanged fittings, B16, was formed in 1921 representing the producer, user, and general interest groups. At the same time, the Refrigerating Machinery Association, now known as the Air Conditioning and Refrigerating Machinery Association, also organized a committee. This producer interest was encouraged to take the lead and dimensions were tabulated for practically all available flanges and fittings. From this, the committee was keenly disappointed to find that among the makers there was no uniformity in dimensions whatsoever. There was encouragement, however, in the fact that the general type of flange was consistent—that is to say, small flanges were of oval, two-bolt design; the medium sizes were of the square, four-bolt type; and the large sizes were of round design. Furthermore, the tongue-and-groove type of facing was universally used. Also, due to the fact that flanges and fittings were used in conjunction with standardized pipe, the physical proportions of the flanges were quite close for each pipe size.

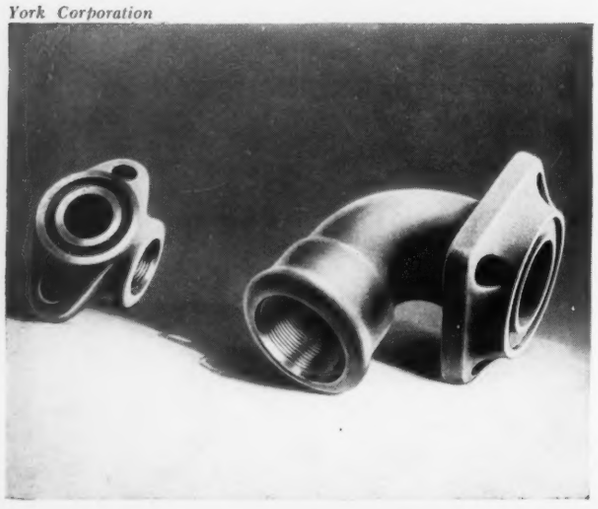
The committee then investigated the possibility of developing dimensions on the basis of a preferred number system. Their work finally



York Corporation

Ammonia Expansion Valve Oval Flanged Globe Type

York Corporation



Screw and Flanged Elbows

York Corporation

Freon Valve, Square Flanged Globe Type

resulted in a Recommended Standard which was published in the American Society of Refrigerant Engineers' *Handbook*. The publication of the recommendation did not succeed in bringing about uniformity among manufacturers to any great degree, particularly because of the exorbitant cost to the industry as a whole to make the change.

The need for the standard continued to be felt, and in 1943 all interests were reorganized to continue the study under Subcommittee No. 1 of ASA Sectional Committee B16, now known as the Committee on Pipe Flanges and Fittings. After thorough review of all past reports, the present standard was developed.

The diameter for small tongue-and-groove facings was standardized by American Standard B16e[1] and these dimensions were accepted for the oval and square refrigerant fittings. The depth of the groove facing, however, was reduced to 1/8 inch on sizes 4 inches and smaller. On sizes 5 inches and larger, large tongue-and-groove facings, center-to-face dimensions, flange diameters, flange thicknesses, and drilling templates were standardized by American Standard B16b,[2] and these were accepted without change.

[1] B16e-1939 is the American Standard for Steel Pipe Flanges and Flanged Fittings. This includes the Addendum B16e4-1940. Another American Standard, Pressure-Temperature Ratings for Steel Pipe Flanges, Flanged Fittings, and Valves, B16e5-1943, is generally used with it since it is a revision of Tables 6 to 11, inclusive, of American Standard B16e-1939.

[2] B16b-1944 is the American Standard for Cast-Iron Pipe Flanges and Flanged Fittings, Class 250. B16b1-1931 covers cast-iron flanges and fittings for 800 lb Hydraulic Pressure, while B16b2-1931 is for cast-iron flanges and fittings for a maximum WSP of 25 lb.

This refrigerant fittings standard is the newest of a long series of developments by ASA Sectional Committee B16 on standardization of pipe flanges and fittings. Dr Emmart LaCrosse, vice-president and director of engineering of the Stone and Webster Engineering Corporation, representing the American Society of Mechanical Engineers, is chairman of the sectional committee. Sponsors of the project are the American Society of Mechanical Engineers; Heating, Piping and Air Conditioning Contractors National Association; and the Manufacturers Standardization Society of the Valve and Fittings Industry.

Other American Standards available in this series include:

Cast-Iron Pipe Flanges and Flanged Fittings, Class 125, B16a-1939
Pressure Ratings for Cast-Iron Pipe Flanges and Flanged Fittings, Class 125, B16a1-1943
Cast-Iron Pipe Flanges and Flanged Fittings, Class 250, B16b-1944
Cast-Iron Pipe Flanges and Flanged Fittings (for 800 lb Hydraulic Pressure), B16b1-1931 Reaffirmed 1947
Cast-Iron Pipe Flanges and Flanged Fittings (for Maximum WSP of 25 lb), B16b2-1931 Reaffirmed 1947
Malleable-Iron Screwed Fittings, 150 lb, B16c-1939
Cast-Iron Screwed Fittings, 125 and 250 lb, B16d-1941
Steel Pipe Flanges and Flanged Fittings (includes Addendum B16e4-1940), B16e-1939
Pressure-Temperature Ratings for Steel Pipe Flanges, Flanged Fittings, and Valves, B16e5-1943
Cast-Iron Long Turn Sprinkler Fittings (includes Addendum B16g1-1937), B16g-1929 Reaffirmed 1947
Steel Butt-Welding Fittings, B16.9-1940 Reaffirmed 1947
Face-to-Face Dimensions of Ferrous Flanged and Welding End Valves, B16.10-1939 Reaffirmed 1947
Steel Socket-Welding Fittings, B16.11-1946
Cast-Iron Screwed Drainage Fittings, B16.12-1942
Ferrous Plugs, Bushings, Locknuts and Caps with Pipe Threads, B16.14-1943
Brass or Bronze Screwed Fittings (125 lb), B16.15-1947

Copies of these and of the newest American Standard on Cast-Iron Flanges and Flanged Fittings for Refrigerant Piping (Class 300), B16.16-1948 may be obtained from the American Standards Association. The latter will be priced at 45 cents.

By taking full advantage of existing standards, the sectional committee finally developed this present refrigerant fitting standard which, in its final form, gives standard dimensions for flange facings, flange dimensions, drilling templates, center-to-face dimensions, minimum metal wall thicknesses, and marking. A minimum grade of material is also specified.

It is apparent from the circumstances surrounding the development of this standard that the producer interests have made a notable contribution to the cause of standardization because of the large sums which they will have to spend for new equipment to meet the standard. It is, however, another example of the manner in which American industry is aware of its responsibility to its consumers and its constant effort to produce more and better goods for public consumption through standardization. In recognition of this fact, it has been recommended that this standard not be made mandatory by codifying authorities and state legislatures until the industry has had a reasonable time to change over its equipment. Sensible economy dictates that this should not be before the end of 1949.

Benefits of Standard Apparent

With the industry ready to supply refrigerant pipe fittings in strict accord with this standard, the long desired benefits will be realized. Designers of refrigerating plants and equipment will be able to lay out their piping installations with assurance that the flanges and fittings they specify can be readily secured through usual trade channels. All laying lengths, clearances, and so forth, will be accurate, enabling erectors to go ahead with confidence that they will not be delayed because of fittings to special dimensions or which do not meet the design requirements. The refrigerant plant operator can reduce his store of repair parts to a minimum and rest assured that in the event of shut-down because of accident, repairs, or other reasons, replacement fittings will be available from any reputable manufacturer or his nearest warehouse. Thus, precious stores of food stuffs and other valuable products held in refrigeration will not be destroyed.

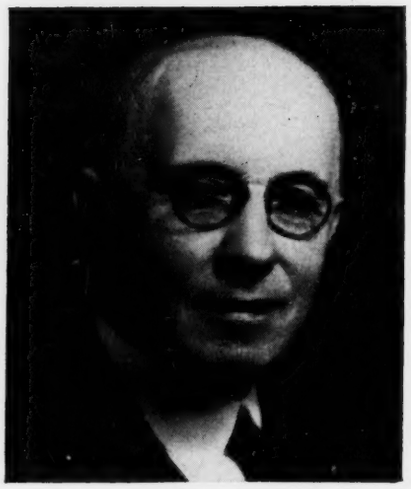
Frank B. Jewett Joins ASA Board of Directors

The American Standards Association is honored to announce the appointment of Dr Frank B. Jewett to the ASA Board of Directors. He is one of the country's elder statesmen in the fields of research and development, and in standardization.

Dr Jewett has spent a greater part of his life with the Bell Telephone System. He rose to the position of vice-president of the American Telephone and Telegraph Company in charge of research and development; then to president—and later, chairman of the board—of Bell Telephone Laboratories.

He has served on numerous special government boards and committees in an advisory capacity, from 1939 to 1947, was president of the National Academy of Sciences, the ranking scientific body of the country, and official scientific adviser to the government.

Throughout his career, he has had an outstanding part in developing standardization and research in the Bell Telephone System. Because of his outstanding position in the electrical industry, he was chosen to head the group which prepared the constitution for the Electrical Standards Committee of the ASA. His work was largely responsible for bringing peace in a field where controversy had raged for six to eight years. He has always shown a keen interest in the activities of the American Standards Association and the ASA has benefited greatly from it. He bore a chief responsibility in the decision of the Bell System to become a member of the ASA Telephone Group.



Frank B. Jewett

Dr Jewett has made notable contributions to the philosophy of standardization and its use by industry.

New Quarterly Magazine To Be Published

A new quarterly journal, *Standards World*, will make its appearance in the standardization field sometime this winter. Its editor, S. P. Kaidanovsky, is well known to readers of INDUSTRIAL STANDARDIZATION for his work as technical consultant with the Federal Specifications Board in Washington, D. C., and as chief of the Research and Technical Services Division of the Standards Branch, Bureau of Federal Supply.

The editorial advisory board includes such important members as:

Dr E. U. Condon, director, National Bureau of Standards
Ralph L. DeGroff, formerly chief, Specifications Division, Department of the Navy
Dr Alice L. Edwards, professor, Mary Washington College, University of Virginia
Dr Ephraim Freedman, director, Macy's Bureau of Standards
Dr Simon G. Hanson, professor of Inter-American Affairs, School of Advanced International Studies, and director, Institute of Inter-American Studies
O. C. Roehl, manager, Investigation Division, Keystone Custodian Funds
Rose L. Vormelker, head, Business Information Bureau, Cleveland Public Library, and president, Special Libraries Association

Regional members are:

West Coast—G. M. Aron, standards engineer, Northrup Aircraft, Inc
Canada—Robert L. Leggett, director, Division of Building Research, National Research Council (Ottawa)
South Africa—Dr J. Ritchie, director, South African Bureau of Standards

News Briefs

• • The principal source of complaints to department stores by dissatisfied customers during the month of June was color fading both in washing and sunlight, reports the Impartial Adjustment Bureau of the U.S. Testing Company, Inc. Excessive shrinkage and unstable fabric finishes also played a large part in the claims sent by department stores to the Bureau for unbiased investigation.

• • Operating formerly under the sponsorship of the Housing and Home Finance Agency, the Uniform Plumbing Code Committee's activities have now been transferred to the U.S. Department of Commerce, Construction Division. Vincent T. Manas will continue as chairman. Where previously only standards for residential plumbing were considered, the committee may now consider commercial and industrial fields.

Industry's Leaders To Hear Textile Report

Executives and technical leaders in the textile field have been invited to hear a first-hand report from the American delegation that attended the meeting of the International Organization for Standardization's Technical Committee 38 on Textiles at Buxton, England, June 7-12.

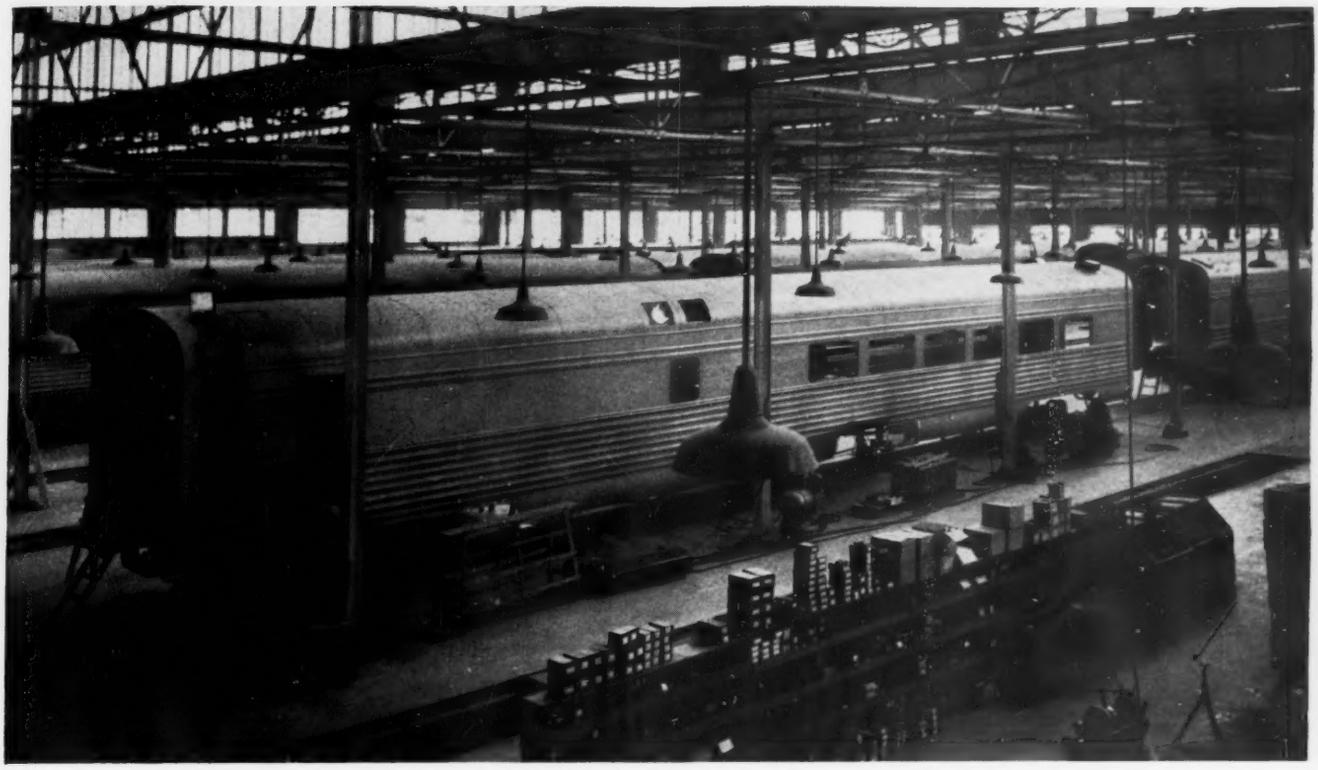
Arranged by the American Standards Association, the affair will be held in the Jade Room of the Waldorf-Astoria Hotel in New York on September 24 at 3 P.M.

Technical societies and trade associations which named members to the delegation are serving as cosponsors of the meeting. They are:

American Association of Textile Chemists and Colorists
American Association of Textile Technologists, Inc
American Council of Commercial Laboratories
American Society for Testing Materials
National Federation of Textiles, Inc
National Cotton Council
National Retail Dry Goods Association
New York Board of Trade, Inc
Textile Foundation
Textile Research Institute, Inc

Sir Clifford Paterson

It is with deep regret that the American Standards Association announces the death of Sir Clifford Paterson, FRS, Chairman of the General Council of the British Standards Institution.



Lines of passenger cars in the finishing shop of the ACF St Charles, Mo., Plant await colorful furnishings, murals, and artistic touches that give each car an elaborate individuality but result in extra costs and decreased production.

Why Can't We Standardize?

Custom-built passenger cars are limiting production and contributing to higher costs says ACF's Chief Engineer. Here he gives his ideas on increased production through standardization

By Allen W. Clarke

Chief Engineer, American Car and Foundry Company

THE history of American railroad car building is replete with progress.

The master carbuilders of another era reached perfection in the carpenter's art, and in 1905, when the ACF introduced the first all-steel car, their efforts were expressed in metal rather than in wood. Passenger cars were tailor-made for individual traffic requirements on different railroads. As the industrial age moved forward, the railroad industry made attempts at standardization of certain basic items. Much progress has been made in this direction, but at this point they are faced with a need for passenger car standardization like never before. Increasing costs due to general conditions are faced by everyone, but custom-built railroad passenger cars are limiting production and contribution to higher costs.

Varieties At St Charles

Take, for instance, the St Charles, Mo., Plant of ACF, one of the most up-to-date shops in the car building industry. Since the end of World

Reprinted from the July-August issue of *Wheels*, published by the American Car and Foundry Company.

War II, 85 lots of new passenger-train cars have been scheduled to be built there; 35 of them have been shipped complete, 20 are in various stages of construction, and 30 remain to be started. These 85 lots represent 397 cars, or an average of less than five cars per lot. Only one lot had as many as 20 cars, while 18 lots of one car each are included. To this complication can be added the fact that 18 different railroads are represented in this one plant, as are 22 standard AAR classifications—baggage, mail, coach, parlor, dormitory, lounge, sleeping, observation, to name a few. And to top it all came the following varieties of shell framing:

1. Carbon steel with welded frame and riveted sheets.
2. Low-alloy, high-tensile steel with spot-welded sheets.
3. Low-alloy, high-tensile steel with riveted sheets.
4. Low-alloy, high-tensile steel with stainless fluted exterior.
5. Low-alloy, high-tensile steel with riveted aluminum sheets.
6. Aluminum with riveted aluminum sheets.
7. Aluminum with fluted anodized aluminum exterior.
8. Steel underframe with aluminum superstructure.

In a few cases, two lots follow the same floor plan; in only two instances do as many as three lots have the same general interior arrangement. Even in these cases there are major variations in major specialties, such as air-conditioning and electric generators, which require differences in construction anyway; so the value of the original similarity is lost.

Decorative Features Require Special Arrangement

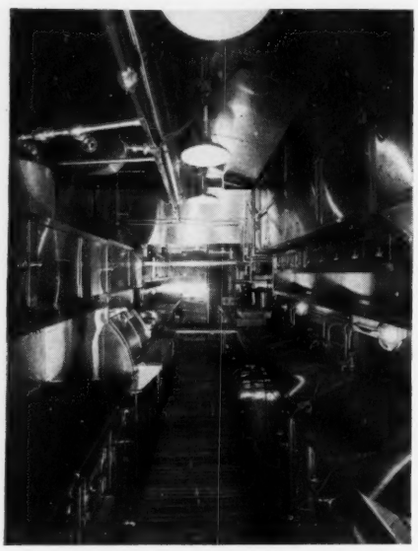
There are also wide variations in interior decorative treatments, ranging from simple designs, relying on color treatment only for desired effects, to the most elaborate details, including wood carvings, metal etchings, panel effects, and edge-lighted plastics. Many of these decorative features require special arrangement and modification of framing to accommodate them.

The effect of these varieties on car-builders' engineering and production departments can be visualized readily. A complete set of drawings and material requisitions is required for each lot, including 500 to 900 drawings and 300 to 600 sheets of requisitions. The cost of engineering per lot is about the same, regardless of the number of cars in the lot. Hence the engineering cost per car on a lot involving a small number of cars becomes a very important cost factor.

Problems of Personnel

As industry has found, the securing of adequate engineering personnel has been and still is a serious problem. The strain on a carbuilder's engineering forces has been terrific, complicated by the wide variety in demand for passenger cars, which in itself increases the work involved. Because of these conditions, the wide variations in designs and the small number of cars per lot, the time required to make drawings and issue requisitions can become controlling factors in determining the starting date for shop production of the cars.

In addition to the adverse effects on engineering of the small-lot sizes, direct labor is increased and production of cars seriously impeded. For the first car of a lot, the direct labor and production time are greater than on subsequent cars, due to the necessity for the men to familiarize themselves with details of construction and to work out methods and procedures.



Great variety of kitchen interiors causes more problems in production.

Individual Railroad Conditions

Of course, it must be accepted that a considerable amount of variation will always be inherent in the business of designing and building railroad passenger cars. The railroads must of necessity consider their own individual operating and traffic conditions. The coach intended for high traffic density and short haul would not be suitable for long overnight trips with relatively low traffic density.

Within these limitations, however, considerable standardization is possible, and is becoming imperative if the railroads are to keep their maintenance costs and inventories within reason and at the same time further increase joint operations and interchange of passenger cars with other roads. These considerations, together with substantial reductions in first cost and increased production of new cars, are certainly adequate reasons for furthering standardization of passenger cars to the maximum extent possible.

To indicate the diversity of orders by American railroads for passenger cars, below are listed some of the types of sleeping cars ordered since the end of World War II:

1. 22 Roomette
2. 21 Roomette
3. 18 Roomette
4. 14 Roomette; 4 Bedroom
5. 14 Roomette; 2 Drawing Room
6. 12 Roomette; 4 Bedroom
7. 10 Roomette; 6 Bedroom
8. 10 Roomette; 3 Bedroom; 2 Compartment
9. 8 Roomette; 2 Bedroom; 2 Compartment; 4 Section
10. 6 Roomette; 3 Bedroom; 8 Duplex Roomette; 1 Compartment
11. 6 Roomette; 4 Bedroom; 6 Section
12. 24 Duplex Roomette
13. 16 Duplex Roomette; 4 Bedroom
14. 8 Duplex Roomette; 4 Bedroom; 4 Section
15. 12 Bedroom
16. 6 Bedroom; Bar Lounge
17. 6 Bedroom; Buffet Lounge
18. 4 Bedroom; 1 Compartment; Observation Lounge
19. 4 Bedroom; 4 Compartment; 2 Drawing Room
20. 2 Bedroom; 1 Drawing Room; Observation Lounge
21. 1 Bedroom; 4 Drawing Room; Observation Lounge

AAR Standardization

Some progress in this direction has already been made. Practically all of the post-war cars are 85 feet long over coupler pulling faces. The AAR construction specification was advanced to standard in 1945 and is generally accepted by the railroads and car builders as representing the minimum for strength requirements. The AAR cross-section contour for passenger cars was adopted as standard in 1940. Battery-box dimensions and some details were standardized in 1945. Most of the railroads are accepting car builders' standards of body framing construction which meet or exceed the requirements of the AAR specifications.

Costs Can Be Cut

But there is more to be done, without in any way stifling progress and design initiative or interfering with the efficient handling of passenger traffic by the railroads.

For instance, cars are bought frequently in train consists for a particular run, the railroad purchasing one or two such trains at a time. Such a train may be made up of a baggage-express car, combination baggage and coach, two coaches, diner, parlor car and lounge observation car—six separate lots or types representing a total of only seven cars. This may be necessary in some cases, but considerable savings could be achieved if the roads would purchase their requirements for one or more type of cars each year over a period of years, eventually equipping all important trains with modern streamline equipment.

It is also felt that many of the variations in arrangements and details on different railroads result from fancied rather than real reasons. As an example it is hard to understand why there should be such an infinite variety in dining car kitchen interiors and equipment. Three or four standard arrangements of different capacities should be sufficient. Also the great variety of sleeping car arrangements which has developed since the railroads started purchasing their own sleepers does not seem to be justified by any corresponding differences in passenger traffic demands. Many other similar examples could be cited.

Car Builders Are Ready

Most persons concerned among both the railroads and the car builders readily agree that additional standardization is highly desirable; but so far no effective method of reaching such a goal has been proposed. The individual railroads, through their mechanical and traffic departments, can do much by an increased willingness to accept the standards of the builders. Through the AAR and their Car Construction Committee, with the proper give-and-take spirit, the railroads could develop an aggressive program of standardization of passenger train cars. Undoubtedly all the car builders are ready to assist in such a program if requested to do so by the committee. The subject is certainly of the greatest importance if passenger train car initial operating and maintenance costs are to be brought down to a level which will permit profit by the railroads from passenger train operation.

Hosiery Manufacturers Join ASA as Member-Body

THE National Association of Hosiery Manufacturers is the newest Member-Body of the American Standards Association. It is fitting that this Association should take its place along with other industrial members of the ASA participating in the development of national standards because the NAHM has been interested in various standardization projects for many years.

These have included such projects as the development of standards for hosiery lengths and sizes, which were subsequently accepted by the National Bureau of Standards and issued as Commercial Standards; standards dealing with the regain of mercerized yarn, the dimensions of hosiery boxes, the oil content for rayon yarn, hosiery fabric defects, raw silk colors, and the construction and inspection of women's full-fashioned hosiery.

At the present time, the Association is sponsoring a project, under the procedure of the American Standards Association, for the development of standards for women's nylon hosiery which will establish a floor for performance of the product. This committee is known as ASA Sectional Committee on Standards for Women's Nylon Hosiery, L21. Its personnel includes not only representatives from the hosiery manufacturing industry, but, also, representatives of wholesale, retail, and consumer groups.

In addition, the NAHM has a special committee which is engaged in developing a standard method for testing the wool shrinkage of hosiery. This committee, in conducting its research on this problem, has received the assistance and cooperation of the Army Quartermaster Research and Development Laboratories at the Philadelphia Quartermaster Depot, and a special committee of the American Association of Textile Chemists and Colorists.

During the past year, the Association's advisory committees on men's and children's hosiery have been engaged in reviewing the commercial standards on lengths of various types of hosiery to determine whether any recommendations should be made to the National Bureau of Standards for changes or additions. The Men's Hosiery Advisory Committee has developed proposals for Commercial Standards on lengths of athletic socks, crew socks, and slack socks, for which no Commercial Standards now exist.

Bachrach

Earl Constantine

Earl Constantine is president of the National Association of Hosiery Manufacturers.

Woolf and Elofson Named ASA Advertising Representatives

With this issue, INDUSTRIAL STANDARDIZATION opens its pages for the first time to advertising. The American Standards Association believes that this will make the magazine more useful to its readers as well as helping to build up for them a more interesting publication with broader coverage of standardization news.

The new firm of Woolf and Elofson has been named advertising representatives, with offices at 70 East 45 Street, New York 17, N. Y. Both Mr Woolf and Mr Elofson have had considerable experience in the advertising field. For the past 13 years, Mr Woolf has been advertising director of the *American Legion Magazine*; Mr Elofson has been in the advertising and publishing business for 27 years, most recently as vice-president and general manager of American Aviation Publishers, Washington, D. C. Information about advertising rates and requirements can be obtained from them.

India Reports Active Program

International agreement on standards urged for better trade relations; textile, engineering, and quality control committees now at work

By Dr Lal Verman

Director, Indian Standards Institution

THE most effective use of the wide variety of raw materials available in India, particularly in view of some of the peculiar problems imposed by the climatic conditions of the country, is one of the principal aims of the Indian Standards Institution. In addition, the program which is now in process of developing step by step is aiming toward increasingly greater efficiency in production and better quality of products, not only for use in India but also for export to other countries.

The Institution held its first meeting early in 1947. It is now organized into five division councils (similar to the correlating committees of ASA), dealing with five different fields of activity—textiles, engineering, chemicals, agricultural and food products, and building. Of these, the work of the textile division is well under way, with six committees already functioning. The 23 committees under the engineering division council are also beginning their work. It is expected that the chemical division will be under way soon, but the others will have to await the development of these three before going forward on a definite program.

In setting up this work, the Institution has given priority to those activities that are required for the development of other industries. Steel and steel products, for example, which are essential for the manufacture of machinery, tools, and other production equipment as well as for products for consumer use, have been given a high priority. Cement, concrete, and nonferrous metals, also high on the list, are needed for building new plants, and as materials in the manufacture of a wide variety of other products on which the development of Indian industry depends.

Another important criterion that is being used in determining what subjects are to be taken up first is the question whether the materials to be covered are produced in India. These, of course, are to be given our primary attention.

In addition to the committees set up under the division councils, a committee on quality control has been organized to work independently, since the statistical method for controlling the quality of manufactured products can be applied in all the different fields covered by the work of the division councils. This quality control committee is now active and is studying the possibility of drafting standard methods for quality control charts for adoption as an Indian Standard. In the meantime, the American War Standards on quality control have been reprinted with the permission of the American Standards Association for use during the period that this Indian Standard is being developed. This action has been taken because of the great interest on the part of industry in India in quality control and the desire to put some standard methods into operation immediately.

The sectional committees organized under the division councils are made up of members representing all interests concerned with the standard or group of standards being developed. This includes scientists and technicians, as well as producers and consumers. The division councils themselves are made up of representatives of users, manufacturers, and others concerned in or associated with the industries covered by the particular division, and the Government Ministry or Department particularly interested in these industries. The division councils report to the General Council, which corresponds roughly to the Standards Council and the Board of Directors of the American Standards Association combined. The Council is made up of one representative of each of the Government Departments which have an interest in standards, representatives of the Provinces and

Government of India Information Service

Workers spinning wool in a woolen mill at Dhariwal, India.

States, and of the technical societies and industrial organizations, representatives of the division councils, a representative elected by the members of the Institution, and special technical experts selected by the Council itself. Arrangements have also been made for membership by neighboring countries, and the Institution is pleased to announce that Ceylon has already become a member.

One of the functions of the Indian Standards Institution will be the coordination of the standardization activities formerly carried on by the government departments. The Ministry of Supply, for example, has had a purchasing and inspection department which has had the responsibility for preparing specifications for the materials and products in which the department is interested. Similarly, the Ministry of Railroads, and other Ministries, have had departments charged with the responsibility for developing standards for their special use. These, as well as industry standards, will now come under the jurisdiction of the Indian Standards Institution.

The work of the textile division is farther along than that of any other. Six textile committees have already started to function, and have appointed a large number of subcommittees to deal with specific problems. These have been developed along the line of the products to be covered. There are, for example, committees for cotton products, jute, woolens, textile mill accessories (shuttles, bobbins, etc). These latter we believe are very important from our point of view because we are beginning to manufacture these accessories and lack of standards to which we can refer in other countries has made this development difficult. Projects are also under way for the development of textile machinery.

Textile Test Methods Studied

One committee—the textile standards committee—has been set up to deal with the projects common to the textile industry as a whole, including test methods.

Textile testing is particularly important because of its relation to the export-import problem. One of the important points brought up at the meeting of the textile committee of the International Organization for Standardization at Buxton, England, in June, was on this subject, particularly in regard to the standard atmosphere required in making tests on textile materials. It was pointed out that India and other tropical countries with a climate similar to that of India should be able to use different atmospheric conditions for testing than those used in countries in the temperate zone. This proposal, made by the Indian representatives, was accepted by the ISO Committee and it was agreed that such standards should be set up in order that India and other tropical countries may carry out textile tests under conditions best suited to their climate which will be acceptable and capable of being compared with test results obtained in other countries.

This is only one of the fields in which the Indian Standards Institution feels keenly that international agreement should be arrived at. We hold important interests in international trade. In the textile field we have almost a monopoly on jute. We export a great many floor coverings to the United States. In mica, shellac, spices, and condiments we are the largest producers in the world, dealing largely with the American market. We also export magnesium and chromium to this country.

The Indian Standards Institution believes it is essential that international coordination of standards be undertaken in all these fields. India is already active in this, now holding the international secretariats for mica and shellac. In addition, we hope to propose formation of ISO committees on other subjects in which we are especially interested.

This is of special importance to us, because in the case of practically every product that is exported from India to the United States, for example, lack of standards upon which agreement has been reached has led to misunderstandings and disputes between purchaser and seller.

American Codes Differ from India's

This concerns American industry as well as the industry of India. For example, boiler manufacturers in the United States are finding it difficult to market their products in India because the national (ASME) boiler code of the United States is appreciably different from the boiler code generally used in India, which is based on British practice.

Purely from the Indian point of view, the Indian Standards Institution is interested in seeing that the Indian export-import trade with the United States develops on a sound basis. This, in our opinion, requires definite international agreements on standards. The effectiveness of such agreements depends upon the existence of strong national standards associations in each country. The position of America in the world today places a special responsibility on the United States and on the American Standards Association to take an active part in the interna-

Government of India Information Service

Women workers sewing jute sacks at factory in Calcutta.

Government of Indian Information Service

One of a group of Malabar Muslim women apprentice tappers learning her new job.

tional program on standardization.

In India, the Indian Standards Institution, being not only the representative of Indian industry but also receiving full support from the various government agencies and Provincial and State governments, expects to meet the requirements of a strong national organization needed to deal with an effective international program.

Our object will be to arrive at agreements on standards wherever possible, and further, whenever necessary, to insure the enforcement of these standards. The Indian Standards Institution will take any steps that may be necessary, even to the extent of recommending legislation to the Government of India, if need be, to attain these objectives, although voluntary cooperation for enforcement of standards agreements will be our primary aim.

Through the courtesy and cooperation of the American Standards Association and the American Society for Testing Materials, I have had an opportunity while I have been in the United States to contact various interests representing dealers in and consumers of shellac and mica. I have also been able to confer with some of the technical committees of these organizations concerned with standardization. Apart from the valuable contacts that have been established, the discussions have clarified the existing problems which will help to accelerate our work in the field of international standardization.

South Africa to Investigate Subject of Electric Motors

It was agreed at the April meeting of the Standards Joint Committee of the South African Standards Institution that a committee be appointed by the Standards Council to investigate the necessity for a South African specification for electric motors. This action was taken because the American Standards Association and the British Standards Institution had indicated that a revision of their respective specifications for electric motors would not take place for some time, it was reported.

Stress Need for Certain Types of Building Standards

"The building industry needs three types of standards. The most basic of these is the dimensional standard, which provides economy and convenience through interchangeability. This should extend interchangeability between competing materials, as for example, between different kinds of floor tilings.

"The second type is performance specifications to assure their fitness for the uses to which materials are put. These include not merely specifications for materials as such, but also installation requirements to assure correct methods of application. For example, specifications for a particular type of flooring will include requirements for the method of laying the floor as well as specifications for the materials used.

"The third type of standard provides requirements for minimum safety, health, and decency. These are usually subject to legal enforcement by such means as building codes, plumbing codes, zoning restrictions, and the like."

—From *Standards—Key to Mass Production of Buildings*, by P. G. Agnew and W. H. Deacy

Books Relating to Standardization

Quality Control in Industry. By J. G. Rutherford (Pitman Publishing Company, 2 West 45th Street, New York 19, N. Y., $3.50)

The principles of quality control and the statistical techniques for applying them are discussed here. Written by an engineer who has had charge of quality control methods and planning in one of the large aircraft plants, this book is intended for use as a text in industrial engineering courses, and as a reference manual for industrial engineers, executives in charge of quality control, and supervisors in charge of inspection work. It deals with the organization, administration, and functions of a quality control department; the actual methods used in its installation; and the introduction, design, and use of statistical sampling techniques.

The book is in two sections. The first, General Principles, presents the organizational and administrative practices for a Quality Control Department. The subjects covered are: functions and responsibilities; organization, economics of quality control; control of quality department costs; reports and records; personnel training; relations to other departments; and relations to customers' representatives.

The second section deals with principles of statistical methods; sampling inspection; process control; specialized applications; and the practical application of statistical methods.

American Electricians' Handbook. By Terrell Croft. Revised by Clifford C. Carr (McGraw-Hill Book Company, Inc, 330 West 42 Street, New York 18, N. Y., $6.00)

As in previous editions of this Handbook, the sixth edition provides a compilation of data and information on electrical equipment and materials presented without the use of advanced mathematics and arranged so as to be as useful as possible for the intelligent selection, installation, maintenance, and operation of electrical equipment.

The entire work has been carefully checked and revised so that it will be in accordance with the 1947 edition of the National Electrical Code developed by the Electrical Code Committee of the National Fire Protection Association and approved by the American Standards Association as American Standard in 1946. Data and information have been added to each division, as necessary, in order to include the latest developments in equipment. Approximately 250 pages of entirely new material, including 150 new illustrations, have been added. The use of electron tubes and circuits in industry has become so prevalent that it seems advisable to add a division dealing with this important subject. Information is provided on the fundamentals of construction, operation, characteristics, and application of electronic devices in industry.

Course in Quality Control

An intensive ten-day course in Quality Control by Statistical Methods is announced by the State University of Iowa. This is the sixth such course offered by the University and will be given October 5-15, 1948, at Iowa City, Iowa.

Testing Company to Produce Standard Soiled Fabrics

IN order to eliminate many difficulties connected with standard tests for evaluating detergents and the efficiency of washing machines, the United States Testing Company, Inc, has entered the field of producing standard soiled fabrics of cotton, wool, acetate, viscose, and perhaps nylon. The decision to make standard soiled fabrics was reached after consultation with many concerns in the soap, machinery, and textile industry.

Many Methods Used In Preparing Soiled Fabrics

According to the Testing Company, it had found, from long experience, that one of the great variations in results of tests of both detergents and machines was due to the many methods used in preparing soiled fabrics. Company technicians consider it a well-known fact that only slight differences in the constituents of standard soiled formula make wide differences in the results obtained. Even batches of carbon black from the same supplier used in the general formula cause variation in the final results.

Survey Taken of Companies Which Conduct Tests

Before reaching the decision to produce and market the new product, a survey of the field was conducted by means of a mail questionnaire. The importance of the project was such that many companies answering the eight questions found the space provided insufficient for their needs and wrote letters describing their difficulties. One of the startling disclosures, the Testing Company noted, was the number of companies and organizations conducting tests with soiled fabrics. The freedom with which they discussed their ways and means of building soiled fabrics and the diversity of method opened wide the possibilities of standardization. More than 95 percent of those who made tests requested a prepared product over their own soiled fabrics.

The eight questions asked manufacturers were:

1. Do you determine the value of soaps and synthetic detergents?
2. In your tests, do you use more than one fabric?
3. Please give the nature of the fibers and construction of the fabrics.
4. Please give the composition of the soil you use.
5. How is it applied to the fabric?
6. What size pieces or swatches do you use in your test?
7. If standard soiled fabrics were made available would you prefer to purchase them or continue to prepare your own?
8. Approximately how many detergency tests do you make per year?

In discussing this new activity, B. S. Van Zile, detergent expert in charge of this division, stated, "The new standard soiled fabrics of the United States Testing Company will be soiled to a standard reflectance which will not be allowed to vary more than $\pm$ 2.5 percent (Hunter Reflectometer). Each batch, after proper aging, will be tested against a standard detergent and must give a reflectance which will vary not more than $\pm$ 2.5 percent.

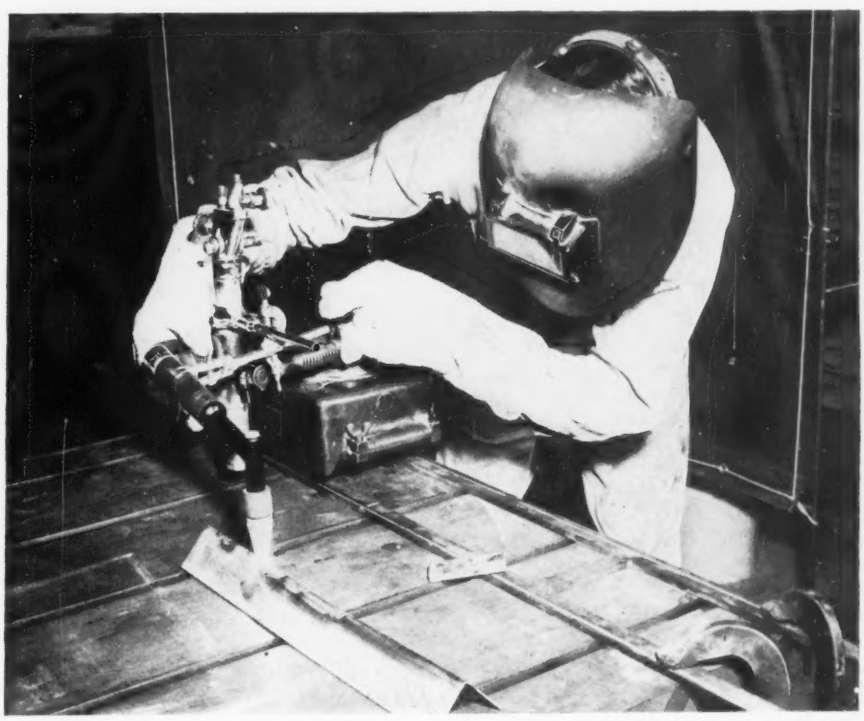
"After the initial aging the soiled fabrics will not change in characteristics over a period of several months when stored at room temperature in an ordinary desiccator. Thus, the user can be assured of reproducible results within the limits of this testing procedure.

"The procedure and apparatus in checking the washability of the soiled fabrics will be published in detail so that any user may check his results. Also, should any user have difficulty in getting reproducible results which he thinks are attributable to the soiled fabric he may return it to us for recheck.

"The fabrics will be 18 inches wide and may be cut to any length the purchaser desires, unless otherwise requested. However, the material will be put up in 10 yard rolls."

Any one desiring samples of these fabrics should address his request to the United States Testing Company, Inc, 1415 Park Avenue, Hoboken, N.J., attention of B. S. Van Zile.

NBS Program to Standardize Eye- Protective Glasses

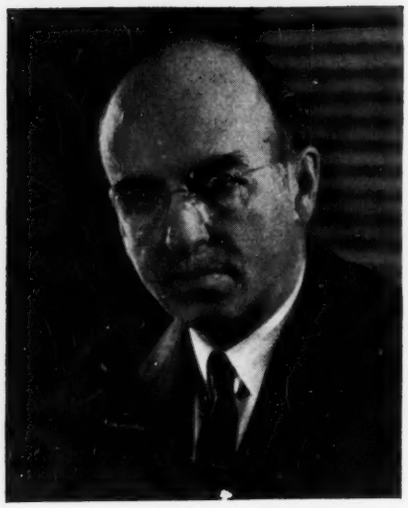


National Bureau of Standards

In a program for the standardization of optical densities of eye-protective glasses, an investigation was made at the National Bureau of Standards of the spectral-transmissive properties of about 200 glasses intended for use as sun glasses or for special industrial operations where injurious amounts of ultraviolet, luminous, or infrared radiant energy is present. Above, the aluminum welder's eyes are protected from the high radiant flux produced at the wavelengths of the sodium lines by a glass containing didymium.

Williams Elected Chairman of Highway Traffic Committee

Recognized for His Contributions to Public Safety



S. J. Williams
National Safety Council

Sidney J. Williams, long identified with the field of industrial safety, has been elected the new chairman of the Highway Traffic Standards Committee of the American Standards Association.

The Highway Traffic Committee is one of the ASA's several special correlating committees which have been delegated the authority to initiate standards relating to their specific fields, approve personnel of sectional committees, assign sponsorships, and approve American Standards. Mr Williams is highly qualified to head such a group. He has been with the National Safety Council since 1918, assuming the title of Assistant to the President in 1945.

Was Member of Original National Safety Code Committee

His familiarity with the workings of the ASA date back to 1919-1920 when he represented the NSC in the reorganization of the American Engineering Standards Committee which later became the American Standards Association. He was also a member of the National Safety Code Committee which eventually became the Safety Code Correlating Committee of the ASA. He served as chairman of the SCCC, vice-chairman of the Highway Traffic Standards Committee, and was active on several sectional committees dealing with industrial and traffic safety subjects.

He has also had a hand in numerous other standardization projects, including the Uniform Vehicle Code, and the Manual of Uniform Traffic Control Devices. He took an active part in the National Conference on Street and Highway Safety, the President's Highway Safety Conference, and other conferences. In 1938, he received the CIT Safety Foundation grand award for the greatest contribution to Public Safety.

Consultant to Government In Development of Safety Program

In 1946, President Truman appointed Mr Williams consultant to the Government for the development of a safety program for federal employees. Last year, he was chairman of a committee of 10 experts who advised the Atomic Energy Commission on its safety program after a three months study. Most recently, he has been named special consultant to the President's Industrial Safety Conference to be held in Washington, D. C., on September 27, 28, and 29.

Planning Under Way for President's Conference on Industrial Safety

TO devise additional means for the promotion of industrial safety and the reduction of the present accident rate, President Truman has asked the Secretary of Labor to call a Conference on Industrial Safety. The organization meetings of the Conference will be held September 27, 28, and 29 in the Interdepartmental Auditorium in Washington.

Seek Cooperative Program by Management, Labor, Government

The overall objective is to provide a long-term program of cooperative action by management, labor, and government. This action program will be based on initial surveys by special committees on problems of engineering, research, safety education, laws and standards, accident reports—their analysis and use, labor-management cooperation for safety, and full utilization of safety services by all business, large and small. From such surveys, a cooperative plan of action will be developed to apply tested safety principles and techniques throughout the industry, and to win acceptance by all of management, labor, government agencies, and the public of the need and responsibility for preventing on-the-job accidents.

The September 1948 Conference is a preliminary meeting of a relatively small working and organizing group which will complete plans for survey committee activities. Immediately following the September Conference, each committee, in interim meetings, will attack the particular phases of the overall problem assigned to its area, and with the assistance of the Coordinating Committee, will present a consolidated action program to a large and comprehensive Conference in the spring of 1949.

Invited to the preliminary Conference are interested representatives of industry, voluntary safety groups, labor organizations, trade associations, insurance groups, educational institutions, and governmental agencies—federal, state, and local.

Secretary of Labor Is Chairman of Conference

By request of the President, the Secretary of Labor is serving as General Chairman of the Conference. He is being assisted by a Coordinating Committee, headed by William L. Connolly, Director of the Bureau of Labor Standards, United States Labor Department, and several advisory groups and technicians. One of the members of the Coordinating Committee is Frederick R. Lack, President of and representing the American Standards Association.

Canada Uses American Transformer Standard In Developing Its Own

"A new CSA Standard Specification has been issued covering Power Transformers, which applies to 25 and 60 cycle, oil or liquid-filled transformers, with capacity above 200 kva in all voltage classes and also in all kva ratings above 15,000 volts. When used for power purposes it includes autotransformers, network transformers, regulating transformers, step-voltage regulators and grounding transformers as far as it applies. It does not apply to testing transformers, dry-type transformers, welding transformers, furnace transformers, rectifier transformers, or any other transformers designed for special purposes excepting network transformers.

"The need for a Canadian standard governing the rating, performance, and test procedure of power transformers has been long felt by manufacturers and users alike. An earlier attempt at standardization had been made, but proved abortive due to the wide differences in opinions and practices in regard to the ratings, terminal bushings, and other details. Subsequently Canadian Standard C2-1944 had been issued covering single-phase distribution transformers, and the Wartime Prices and Trade Board had issued Order No. A-1021 covering a specified range of ratings and accessories for transformers.

"With this groundwork laid, the Canadian Standards Association called a meeting on February 9, 1945, which was attended by representatives of the various manufacturers and utilities. After reviewing the background, this committee decided to utilize the American Standard specification C57, as a guide for the first draft of the specification, with such modifications as would be necessary to comply with established Canadian practice.

"A fundamental question as to the basis of rating had to be determined, since Canadian practice was not uniform in this respect. The ASA ratings were based upon a 55 C temperature rise, whereas the WPTB order ratings were based upon a 50 C rise. The Canadian utilities and some industries were therefore circularized, and the resulting answers indicated a preference for the 55 C rating. The committee accordingly adopted the 55 C temperature rating, as it would more readily provide a comparison of performance and operating data with similar equipment manufactured in the USA.

"Since the initial meeting of the committee, the Canadian Electrical Manufacturers Association has agreed on standard dimensions for transformer bushings up to and including the 69 kv class. This agreement will be of material assistance in furthering the standardization of transformers and component parts in Canada.

"The listing of standard ratings and preferred ratings was based on the records of previous purchases and the schedule of the WPTB. The intention of the preferred ratings is to direct future purchases as far as possible to specified ratings, in order to secure the benefit of volume production and to facilitate the building of stock transformers by the manufacturers."

—Canadian Standards Association *Bulletin.*

Italy's Standardization Activities During 1947

Copies of an information bulletin are now being circulated by the Italian Standards Organization (UNI) as a report on the work of the group. Two issues have been received by the American Standards Association and are available in the ASA Library for reference.

From these documents it appears that, at the end of 1947, membership in the UNI consisted of 410 full members and 110 associate members; and that the Association handled annually about 50,000 questions, inquiries, technical consultations, and the like, of which 11,000 related principally to standardization.

The principal activity of the central office of UNI in 1947 in the technical field consisted of reorganization and re-establishment of two sectional committees: one covering mechanical questions, the other covering the building industry. Each sectional committee, in turn, created various technical subcommittees which were very active during the year.

In the international field, the UNI took an active part in the projects on chemistry (ISO-47) and pneumatic tires (ISO-31). It expects, also, to cooperate in the work on agricultural machinery and paper sizes.

South Africa Builds on American Standards

The South African Bureau of Standards, in circulating its draft specification for power-driven woodworking saws, acknowledges the "valuable assistance it has derived from the American Standard Safety Code for Woodworking Machinery, O1.1-1944."

In undertaking development of a safety code for x-ray equipment in South Africa, the committee assigned the project decided that the International Code and the American Standard Safety Code for the Industrial Use of X-Rays, Z54.1-1946, should be used as a working basis.

The American Standard Building Code Requirements for Masonry, A41.1-1944, is being used in the preparation of a new set of building by-laws to be in effect throughout the country.

Swiss Standards Group Reports Its 1947 Activities

The standardization bureau of the Swiss Machines Manufacturers Association (VSM) reports for the year 1947 the issuance of 60 single-sheet standards and one three-page standard.

Technical committees meeting during the year concerned themselves with such topics as technical drawings, screws and accessories, machine parts, services, manometers and thermometers, valves, small tools and machine tools, abrasive wheels, tolerances on threads, steel, iron, and nonferrous materials, gages, wires and cables, preferred numbers, welding, plasters, structures, testing of materials, and textile machinery.

CSA Seeks Adoption Of American Standards

The Canadian Standards Association has requested permission to adopt some of the American Standards on motion picture photography as Canadian Standards.

Standards Received from Other Countries

COPIES of the following standards received from other countries during the past month are now in the ASA Library, and available to Members of the American Standards Association who may wish to borrow copies. Orders may also be sent to the country of origin through the ASA office. The titles of the standards are given here in English, but the documents themselves are in the language of the country from which they were received.

For the convenience of our readers, the standards are listed under the UDC classification.

003.6:655.2 Writing and Typesetting of Graphic Representation of Thought

Italy

Rules for Writing and Printing Most Common Expressions and Formulas of Physics and Mathematics, UNI2950

536.5 Temperature Measurement. Temperature Controls

Mexico

Thermometers, Clinical, DGM Q1-1947

61 Medical Science. Medicine. Hygiene. Pharmacy

Mexico

Glass Hypodermic Syringe, DGM R7-1947

620.1 Testing Materials

Italy

Various Methods for Testing Plastic Materials, UNI2839-2849

621 Mechanical Engineering

Italy

Standard Types of Metric Screws with Round, Flat, and Hexagon Head, UNI161

Special Wrenches for Fire Hose Union, UNI814

Pipe Fittings and Accessories for Marine Construction, UNI 2795-2798

Valves and Fittings for Marine Type Flexible Piping, UNI2855-2875

Cold Drawn Precision Seamless Steel Pipes, UNI2897-2900

Axle Heights for Machines, UNI 2946

Lifting Bolts with Round Eye and Threaded Stern, UNI2947

Lifting Oval Eye with Threaded Base Hole, UNI2948

621.3 Electrical Engineering

Argentina

Standard Voltages and Frequencies, IRAM2001-N10

Insulating Tape, IRAM2030-N10

Electric Bell Transformer, IRAM 2041-P

Fixed Mica Condenser for Radio, IRAM4006-N10

Symbols for Representation of Radio Tube Electrodes, IRAM 4035-NP

Austria

Power Line Insulators Series N for tension under 1000v, ONORM E4100

Suspension Tongs for Bell-type Insulators, ONORM E4104

High Tension Insulators, Series VK, ONORM E4115

Insulated Bushings for Transformer Lead-out, 1000 v, 200 to 300 amp, ONORM E4850

France

Synthetic Thermoplastic Covered Wires, NF C89

Rubber and Its Substitute Insulated Wires, NF C105

Palestine

Lighting Fittings. Tentative. Specification, PSS 20T

621.7 Workshop Practice

Italy

ISA Tolerance System, UNI2903-2905

624 Civil Engineering

Austria

Carpentry, General Rules, ONORM B2217

France

General Forms of Building Contracts, NF PO3-001

Characteristics of Standardized Elevators, NF P82-203

Italy

Doors, Windows, Shutters, etc, UNI2815 to 2836

Mexico

Concrete Pipes for Irrigation, DGM C22-1947

Wooden Doors, DGM R6-1947

628 Sanitary Technology and Engineering

Italy

Toilet and Bathroom Equipment, UNI2906-2937

629.11 Land Vehicles. Transport Engineering

France

Tie Road Turnbuckle, NF R126-07

Automobile Tire Valves, NF R127-01

Automobile Electric Lamps, Different Types, NF R136-01 through R136-10

Italy

Bicycles, Details and Parts, UNI2799-2814

629.12 Ships and Ship Building

France

Manhole Openings, NF J31-505

Manhole and Manhole Covers, NF J31-520-522

Covers for Inspection Holes, NF J31-540-543

637.2 Produce from Domestic Animals

Mexico

Butter, DGM F10-1947

64 Domestic Science. Housekeeping

France

Wooden Coat Hangers, NF D24-301

Wooden Bread Boards, NF D24-303

Wooden Medicine Cabinets, NF D24-304

Wood and Canvas Folding Stools, NF D62-301

Wood and Canvas Deck Chairs, Types "Transatlantic", NF D62-302

Kitchen Wooden Stool, NF D62-303

642.1 Chemical Laboratory Equipment

Italy

Porcelain Dishes, UNI2942-2945

Bains-Marie, Supports, etc, UNI 2876-2986

Bunsen Burners, UNI2938/39

66 Chemical Industry. Chemical Technology

Argentina

Spirit of Turpentine, IRAM 1007-N10

Butil Acetate Normal, IRAM 1040-N10

662.6 Fuel Industry

Italy

Classification of Solid Combustibles, UNI2940/41

663.93 Chocolate. Cocoa. Coffee. Tea. Tobacco

Mexico

Roasted Coffee, DGM F15-1947

664.85 Preservation of Organic Substances. Fruits

Mexico

Pineapple Preserves, DGM F11-1947

665 Oils. Fats. Waxes

Argentina

Raw Tung Oil, IRAM1027-NP

Naphtha Solvent, IRAM1045-NP

Paraffin Wax, IRAM1050-NP

Mexico

Animal Fats, DGM F12-1947

667.6 Paints. Varnishes. Lacquer. Polishing Material

Argentina

Red Lead Pigment, IRAM1011-NP

Weathering Test of Paints and Varnishes, IRAM1023-NP

666.7 Bricks. Tiles. Refractory Products

Argentina

Classification of Refractory Clays, IRAM1542-P

Definition and Classification of Refractory Materials, IRAM 1543-P

669 Metallurgy

Argentina

Definition and Designation of Principle, Metallurgical Products, IRAM501-N10

Carbon Steel Castings, IRAM 527-NP

France

Hot Rolled Special Channels, NF A45-256

Electrolytic Deposits of Nickel and Chrome, NF A91-101

Italy

Round Steel Bars, Zinc and Zinc Alloy Castings, UNI2850-2852

Mexico

Embossed Silver Products, DGM B23-1947

Cathodes and Ingots of Electrolytic Copper, DGM B27-1947

Cold Drawn Low-Carbon Steel Plates, DGM B28-1947

Refined Antimony, DGM B29-1947

674 Wood Industry

France

Wood Fiber Panels Called "Fibragglo", NF B54-007

Italy

Nomenclature of Native and Exotic Wood Species Growing in Italy, UNI2853/54

676 Paper and Paper Industries

France

Standard Labels for Shoe Boxes, NF Q32-004

677 Textile Industry

Italy

Testing of Textile Materials, UNI2901/02

Mexico

Display Stand Covers, DGM A1-1944

Definition of Terms Relative to Textile Industry, DGM A12-1947

Commercial Henequen Threads and Cords, DGM A13-1947

Henequen Ropes, DGM A14-1947

Definition of Terms Generally Used in Henequen Industry, DGM A15-1947

691 Building Materials

Argentina

Asbestos-Cement Plates and Slats, IRAM1511-MD

Concrete Hollow Blocks of Portland Cement, IRAM1521-P

Soundness Test of Aggregate by Sodium Sulfate and Magnesium Sulfate, IRAM1525-P

Soundness Test of Aggregate by Freezing and Thawing Methods, IRAM1526-P

Austria

Cement Roofing Tiles, ONORM B3250

Mexico

Masonry Cement, DGM C21-1947

Palestine

Curbstones, Tentative Specification, PSS-19T

Concrete Interlocking Tiles, Tentative Specification, PSS-21T

744 Technical Drawing

Italy

Technical Drawings, Diagrams, etc, UNI2945

Argentina

Technical Drawings. Dimensioning, IRAM4510-N10

Technical Drawings. Graphs, IRAM4516-N10

Technical Drawings. Representation of Threads, IRAM4520-N10

ASA Standards Activities

Status of Standards As Of August 18, 1948

American Standards Approved Since July 15, 1948

Dimensions for 35-Millimeter Magazine Film (for Miniature Cameras), Z38.1.49-1948

Method for Determining Maximum Safe Temperatures for Photographic Processing Solutions, Z38.8.19-1948

Methods of Testing Printing and Projection Equipment, Z38.7.5-1948 (Revision of Z38.7.5-1943)

General Purpose Photographic Exposure Meters (Photoelectric Type), Z38.2.6-1948

Sponsor: Optical Society of America

Specifications for Interior Marble, A94.1-1948

Sponsor: Marble Institute of America

Standards Being Considered for Approval

By the Board of Review—

Specifications for Shock-Testing Mechanism for Electrical Indicating Instruments, C39.3 (Revision of American War Standard C39.3-1943)

Sponsor: Electrical Standards Committee

Circular and Dovetailed Forming Tool Blanks (Revision of B5.7-1943)

Sponsors: American Society of Mechanical Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers

By the Standards Council—

Graphical Symbols for Electron Devices, Z32.10 (Revision of Z32.10-1944)

Sponsors: American Society of Mechanical Engineers; American Institute of Electrical Engineers

Approval Requirements for Domestic Gas Ranges (Revision of Z21.1-1942)

Requirements for Installation of Domestic Gas Conversion Burners (formerly American Standard Requirements for Installation of Conversion Burners in House Heating and Water Heating Appliances) (Revision of Z21.8-1940)

Approval Requirements for Hot Plates and Laundry Stoves (Revision of Z21.9-1940)

Approval Requirements for Gas Space Heaters (Revision of Z21.11-1942)

Listing Requirements for Domestic Gas Conversion Burners (Revision of Z21.17-1940)

Listing Requirements for Automatic Main Gas Control Valves (Revision of Z21.21-1935)

Approval Requirements for Portable Gas Baking and Roasting Ovens (Revision of Z21.28-1941)

Sponsor: American Gas Association

Dimensions for Theater Projection Screens, Z22.29 (Revision of Z22.29-1946)

Theater Sound Test Film for 35-Millimeter Motion Picture Sound Reproducing Systems, Z22.60

Laboratory-Type Sound Focusing Test Film for 35-Millimeter Motion Picture Sound Reproducers, Z22.62

Service-Type Scanning Beam Uniformity Test Film for 35-Millimeter Motion Picture Sound Reproducers, Z22.65

Laboratory-Type Scanning Beam Uniformity Test Film for 35-Millimeter Motion Picture Sound Reproducers, Z22.66

1000-Cycle Balancing Test Film for 35-Millimeter Motion Picture Sound Reproducers, Z22.67

Sound Record and Scanning Area of Double Width Push-Pull Sound Prints (Centerline Type), Z22.69

Sound Record and Scanning Area of Double Width Push-Pull Sound Prints (Offset Centerline Type), Z22.70

Sponsor: Society of Motion Picture Engineers

By the Board of Examination—

Letter Symbols for Physics, Z10.6

Sponsors: American Association for the Advancement of Science; American Institute of Electrical Engineers; American Society of Civil Engineers; American Society for Engineering Education; American Society of Mechanical Engineers

Specifications for Slab Zinc (Spelter) (Revision of ASTM B6-46; ASA H24.1-1946)

Specifications for Copper Water Tube (Revision of ASTM B88-47; ASA H23.1-1947)

Specifications for Copper and Copper-Base Alloy Forging Rods, Bars, and Shapes (Revision of ASTM B124-47; ASA H7.1-1947)

Specifications for Zinc-Coated (Galvanized) Iron or Steel Farm-Field and Railroad Right-of-Way Wire Fencing (Revision of ASTM A116-39; ASA G8.9-1944)

Specifications for Zinc-Coated (Galvanized) Iron or Steel Barbed Wire (Revision of ASTM A121-39; ASA G8.10-1944)

Specifications for Gray Iron Castings (Revision of ASTM A48-46; ASA G25.1-1947)

Method of Drop Shatter Test for Coke (Revision of ASTM D141-23; ASA K20.4-1936)

Methods of Laboratory Sampling and Analysis of Coal and Coke (Revision of ASTM D271-46; ASA K18.1-1946)

Proprietary Sponsor: American Society for Testing Materials

By the Safety Code Correlating Committee—

Practice for School Lighting, A23

Sponsors: American Institute of Architects; Illuminating Engineering Society

By the Consumer Goods Committee—

Accelerated Ageing of Textile Dyes with Sulfur, L14.1

Colorfastness of Textiles to Acids and Alkalies, L14.2

Colorfastness of Wool Textiles to Carbonizing, L14.3

Colorfastness of Silk to Degumming, L14.4

Colorfastness of Textiles to Fulling, L14.5

Colorfastness of Wool Textiles to Mill Washing and Scouring, L14.6

Colorfastness of Silk to Peroxide Bleaching, L14.7

Colorfastness of Textiles to Sea Water, L14.8

Colorfastness of Textiles to Stoving, L14.9

Test for Mercerization, L14.10

Evaluation of Wetting Agents, L14.11

Definition of Terms Relating to Textile Materials (ASTM D 123-47; ASA L14.12)

General Methods of Testing and Tolerances for Cotton Yarn (Tentative) (ASTM D 180-47T; ASA L14.13)

Methods of Testing and Tolerances for Cotton Sewing Threads (ASTM D 204-42; ASA L14.14)

Methods of Test for Osnaburg, Cement Sacks (ASTM D 205-39; ASA L14.15)

Methods of Testing and Tolerances for Woven Tapes (ASTM D 259-44; ASA L14.16)

Methods of Testing and Tolerances for Certain Light and Medium Weight Cotton Fabrics (ASTM D 274-36; ASA L14.17)

Methods of Test for Asbestos Yarns (ASTM D 299-42; ASA L14.18)

Method of Determining Relative Humidity (ASTM D 337-34; ASA L14.19)

Methods of Test for Holland Cloth (ASTM D 376-35; ASA L14.20)

Methods of Testing and Tolerances for Woolen Yarns (ASTM D 403-44; ASA L14.21)

Methods of Testing and Tolerances for Worsted Yarns (ASTM D 404-44; ASA L14.22)

General Methods of Testing Cotton Fibers (Tentative) (ASTM D 414-47T; ASA L14.23)

Method of Test for Strength of Rayon Woven Fabric When Wet (ASTM D 415-38; ASA L14.24)

Method of Testing Pile Floor Covering (ASTM D 418-42; ASA L14.25)

Methods of Test for Fineness of Wool (Tentative) (ASTM D 419-47T; ASA L14.26)

Methods of Testing and Tolerances for Certain Carded Cotton Gray Goods (ASTM D 433-39; ASA L14.27)

Methods of Testing and Tolerances for Certain Wool and Part Wool Fabrics (ASTM D 462-44; ASA L14.28)

Methods of Test for Fineness of Wool Tops (Tentative) (ASTM D 472-47T; ASA L14.29)

Methods of Testing and Tolerances for Spun Rayon Yarns and Threads (ASTM D 507-44; ASA L14.30)

Methods of Testing and Tolerances for Yarns Spun from Mixed Fibers (ASTM D 508-43; ASA L14.31)

Method of Test for Fiber Length of Wool (ASTM D 519-40; ASA L14.32)

Methods of Testing Rayon Staple (ASTM D 540-44; ASA L14.33)

Methods of Testing and Tolerances for Single Jute Yarn (ASTM D 541-41; ASA L14.34)

Methods of Testing Woven Asbestos Cloth (ASTM D 577-42; ASA L14.35)

Methods of Testing and Tolerances for Glass Yarn (Tentative) (ASTM D 578-47T; ASA L14.36)

Methods of Testing and Tolerances for Woven Glass Fabrics (ASTM D 579-47; ASA L14.37)

Methods of Testing and Tolerances for Woven Glass Tapes (ASTM D 580-47; ASA L14.38)

Methods of Testing and Tolerances for Woven Glass Tubular Sleeving and Braids (ASTM D 581-44; ASA L14.39)

Method of Test for Hard Scoured Wool in Wool in the Grease (Laboratory Scale Operations) (ASTM D 584-47; ASA L14.40)

Methods of Testing Asbestos Tubular Sleeving (ASTM D 628-44; ASA L14.41)

Methods of Testing and Tolerances for Certain Fine Staple Cotton Gray Goods (ASTM D 679-44; ASA L14.42)

Methods for Testing and Tolerances for Certain All-Cotton and Cotton-and-Rayon Fine Fancy Goods (ASTM D 680-44; ASA L14.43)

Methods of Testing and Tolerances for Jute Rove and Plied Yarn for Electrical and Packing Purposes (Tentative) (ASTM D 681-42T; ASA L14.44)

Methods of Testing and Tolerances for Rope (Leaf and Bast Fibers) (ASTM D 738-46; ASA L14.45)

Methods of Testing and Tolerances for Spun, Twisted, or Braided Products Made from Flax, Hemp, Ramie, or Mixtures Thereof (ASTM D 739-46; ASA L14.46)

Method of Test for Compatibility of Glass Yarn with Insulating Varnish (Tentative) (ASTM D 886-46 T; ASA L14.47)

Recommended Practice for a Universal System of Yarn Numbering (ASTM D 861-47; ASA L14.48)

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

Standards Submitted to ASA for Approval

Pool Cathode Mercury-Arc Power Converters (AIEE No. 6), C34

Sponsor: American Institute of Electrical Engineers

Safety Code for Safety Glass for Glazing Motor Vehicles Operating on Land Highways (Revision of Z26.1-1938)

Sponsors: Association of Casualty and Surety Companies; National Bureau of Standards

Dimensions for Radiographic Intensifying Screens, Z38.1.50

Method for Determining the Melting Point of the Photographic Layer of Films, Plates, and Papers, Z38.8.20

Dimensions for 70-Millimeter Perforated (and Unperforated) Film (Revision of Z38.1.2-1941)

Sponsor: Optical Society of America

American Standards Being Considered for Reaffirmation

By the Standards Council—

Definition of Safety Photographic Film, Z38.3.1-1943

Specifications for Projectors for Opaque Materials for Use in Small Auditoriums, Z38.7.4-1944

Specifications for Contact Printers, Z38.7.-10-1944

Specifications for Printing Frames, Z38.7.-11-1944

Specifications for Masks (Separate) for Use for Photographic Contact Printing, Z38.7.12-1944

Sponsor: Optical Society of America

Withdrawal of Approval Being Considered

By the Safety Code Correlating Committee—

Allowable Concentration of Metallic Arsenic and Arsenic Trioxide (American War Standard), Z37.9-1943

News About Projects

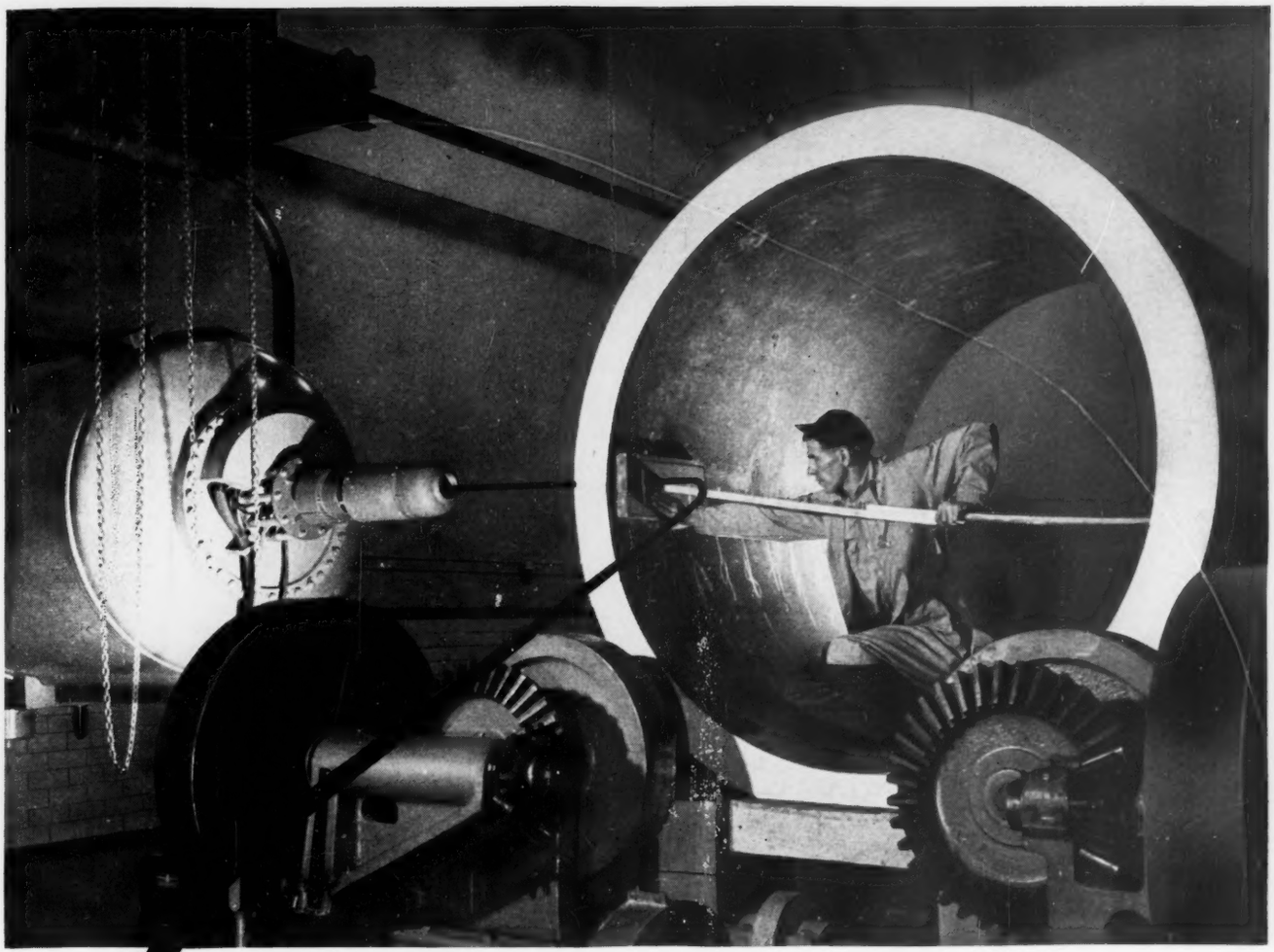
Portland Cement, A1—

Sponsor: American Society for Testing Materials

The Board of Examination, in accordance with the sponsor's suggestions, is recommending to the Standards Council that the title and scope of committee A1 be changed to read as follows:

Title: Specifications and Methods of Test for Hydraulic Cement

Scope: Specifications and methods of test for hydraulic cements such as portland cement of various types, natural cements, pozzuolanic cements, masonry cements, slag cements, and various modifications of the foregoing and/or combinations during manufacture thereof with one or with other materials.



The NEW LOOK—B&W Style

The 2,000,000-volt x-ray machine shown at left in the photograph above is the newest and largest of twelve similar machines used by B&W to make certain that welded seams in heavy steel pressure vessels meet industry code specifications. Part of B&W's huge plant modernization program, it is the largest ever constructed for inspecting welds . . . eight times as powerful as the average hospital-type x-ray.

This pioneering step is further evidence of B&W's continuing search for better tools and better methods to serve industry. Long years of this kind of engineering foresight has linked B&W's name with many significant developments in widely divergent fields. For B&W has never lost the art of having new ideas . . . a good reason B&W is the right place to bring today's problem or tomorrow's plan.

Babcock & Wilcox

THE BABCOCK & WILCOX CO.
General Offices: 85 Liberty St., New York 6, N. Y.
Works: Alliance and Barberton, O., Augusta, Ga.

THE BABCOCK & WILCOX TUBE CO.
General Offices: Beaver Falls, Pa.
Plants: Beaver Falls, Pa.; and Alliance, Ohio

N-39

Water-Tube Boilers, for Stationary Power Plants, for Marine Service . . . Water Cooled Furnaces . . . Superheaters . . . Economizers . . . Air Heaters . . . Pulverized-Coal Equipment . . . Chain-Grate Stokers . . . Oil, Gas and Multifuel Burners . . . Seamless and Welded Tubes and Pipe . . . Refractories . . . Process Equipment

Ball and Roller Bearings, B3—

Sponsor: Mechanical Standards Committee

Boundary dimensions, tolerances, and gaging practice for ball and roller bearings are covered in a draft standard now being considered by the sectional committee. The proposal covers substantially all types of bearings now in use. The sizes range from 1/8 in. bore and from 3/8 in. outside diameter to 35.4 in. bore and 50.4 in. outside diameter.

Accuracy for Tool Room Lathes, B5.16—

Sponsors: American Society of Mechanical Engineers; National Machine Tool Builders' Association; Society of Automotive Engineers, Inc; Metal Cutting Tool Institute

It is understood that the first regular American Standard covering inspection requirements for machine tools is now nearing completion and will be submitted soon by the sponsors for approval by ASA. Standards of this type have gained a degree of popularity in various other countries and there is a wide demand for them in this country among machine tool users and purchasers. An American War Standard, Accuracy of Engine Lathes, B5.16-1941, was approved by the American Standards Association for use during the war and will be superseded by the new peacetime standard when it is completed.

Standards for Household Refrigerators and Home and Farm Freezers, B38—

Sponsors: American Society of Refrigerating Engineers; U. S. Department of Agriculture, Bureau of Human Nutrition and Home Economics.

Re-approval of the personnel of this committee with respect to the maintenance of a substantial balance of interest is now being considered by the Consumer Goods Committee.

The American Standard Method of Computing Food-Storage Volume and Shelf Area of Automatic Household Refrigerators, B38.1-1944, has also been referred to the Consumer Goods Committee with a recommendation from the sectional committee that the standard be reaffirmed.

Steel Raceways for Electrical Wiring Systems, C80—

Sponsors: American Iron and Steel Institute; National Electrical Manufacturers Association

The first meeting of this group was held on July 29. The committee was organized at the request of the American Iron and Steel Institute to create a national standard for rigid steel conduit and electrical metallic tubing. The main work of this committee will be to consider two proposed standard specifications for Rigid Steel Conduit and Electrical Metallic Tubing submitted by the AISI.

Part of this meeting was devoted to a review of the first standard. Suggested changes were recommended and these changes will also be incorporated in a revision of the Electrical Metallic Tubing specification, in so far as they apply.

J. C. Siegle, Youngstown Sheet and Tube Company, was appointed chairman of the committee, while Walter O. Zervas, American Iron and Steel Institute, will serve as secretary.

Members of the group suggested that the Electrical Supplies Committee of the National Bureau of Standards, the American Electroplaters Society, and the ASA Telephone Group be invited to appoint representatives to serve on the committee.

NEMA proposed to prepare a draft standard covering components for steel raceways, such as elbows, couplings, connectors, bushings, and locknuts, for consideration by the sectional committee.

It is expected that the next meeting of the committee will be held some time in October.

Free-Cutting Brass Rod and Bar for Use in Screw Machines (ASTM B16-47; ASA H8.1-1947)—

Proprietary Sponsor: American Society for Testing Materials

A tentative revision, approved for publication by the ASTM before final adoption, provides that in the tension test outlined in this standard all material shall be pulled in full size when practicable and that the test specimens shall be as specified in the Tentative Methods of Tension Testing of Copper and Copper-Alloy Rods, Bars, and Shapes (ASTM B220). In addition, a reference to Standard Methods E 8 is replaced by reference to Tentative Methods B 220. Under the proprietary sponsorship method, the ASTM has responsibility for revisions of this standard.

Textile Test Methods, L14—

Sponsors: American Association of Textile Chemists and Colorists; American Society for Testing Materials

Eleven AATCC standards and 37 ASTM standards, approved by the sectional committee with the recommendation that they be approved as American Standard, are now out to letter ballot of the Consumer Goods Committee. They are existing standards covering methods of test and, in some cases, tolerances of various textiles.

Letter Symbols and Abbreviations for Science and Engineering, Z10—

Sponsors: American Association for the Advancement of Science; American Institute of Electrical Engineers; American Society of Civil Engineers; American Society of Mechanical Engineers; American Society for Engineering Education

Supersonic flight, jet propulsion, rotary-wing aircraft, pilotless aircraft, and guided missiles have brought with them new and related problems in the fields of aeronautics and aerodynamics. The vast government-sponsored programs in these new fields demand such varied backgrounds and talents that there seems to be confusion whenever physicists, chemists, electrical engineers, and others try to discuss some new aeronautical problem with the aeronautical engineers.

In an attempt to remedy this situation, ASA Sectional Committee Z10 reconstituted one of its subcommittees (No. 7) last year to study the possibilities for standardization of letter symbols for aeronautics and aerodynamics. The subcommittee includes in its membership broad representation from industry, academic institutions, and government agencies (including the National Advisory Committee for Aeronautics).

Work began with the study of as many existing letter-symbol collections as could be obtained; and a synoptic chart of the symbols and concepts was then prepared. In the course of two meetings last winter, a tentative set of primary letter symbols was evolved, and at the third meeting (held this July 16) corrections and additions were made to this list.

In order to be able to publish a tentative standard at the earliest possible date, it is planned to submit recommended letter symbols for the primary concepts to the sectional committee some time in the fall of this year. It is realized that revision may be indicated soon thereafter, but the subcommittee feels that subscripts for the modifying concepts may appropriately be considered after publication of the tentative recommendations for the primary concepts.

—Report by *R. C. Hopgood*, secretary of Subcommittee 7, Standardization of Letter Symbols for Aeronautics and Aerodynamics

Acoustical Measurements and Terminology, Z24—

Sponsor: Acoustical Society of America

The comment and criticism of more than 750 workers in the fields of acoustics, both pure and applied, is being sought by committee Z24 in regard to a proposed extensive revision of the American Standard Acoustical Terminology, Z24.1-1942. Terms for sound recording, underwater sound, shock, and vibration have been added in this new edition.

This proposed standard represents the combined efforts of the members of the Technical Committee on Electroacoustics of the Institute of Radio Engineers, and the Subcommittee on Acoustical Terminology, Z24A, of the American Standards Association.

In addition, the chairman of the interested subcommittees of ASA Sectional Committee C42 on Definitions of Electrical Terms have been consulted in an effort to bring as many of the acoustical definitions as possible into agreement with terms included in the American Standard Definitions of Electrical Terms, C42-1941.

Allowable Concentrations of Toxic Dusts and Gases, Z37

A recommendation from the sectional committee that the American War Standard Allowable Concentration of Metallic Arsenic and Arsenic Trioxide, Z37.9-1943, be withdrawn has now been referred to the Board of Review for final action.

This standard was developed by the Z37 committee, acting as a war committee, because of some possible uses of arsenic in the war effort, but, actually, such uses never developed. Members of the committee, reviewing the standard at a meeting in December 1947, reported that in regular peacetime operations there were substantial records of operations where concentrations much higher than those permitted by the standard had been found entirely harmless. At this meeting, a subcommittee had been established to investigate whether or not there was a need for a peacetime standard on arsenic and, if so, to make recommendations on the technical content of such a standard. In the meantime, the committee believed that the present war standard should be withdrawn. Subsequent letter ballots of the sectional committee and the Safety Code Correlating Committee confirmed this action.